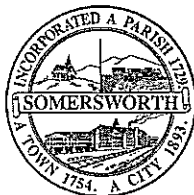


SOMERSWORTH, NEW HAMPSHIRE

City of Somersworth
One Government Way
Somersworth, NH 03878



City Hall
603.692.4262
www.somersworth.com

November 16, 2017

ROI-18-C-029

USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave, N.W.
Mail Code 3903R
Washington DC 20460

Dear Sir/Madam:

The City of Somersworth is please to submit this EPA Brownfields clean up grant.

a. Applicant Identification: City of Somersworth
One Government Way
Somersworth NH 03878

b. Funding Requested: \$200,000

i) Grant Type: Single Site Cleanup

ii) Federal Funds Requested \$200,000. We are not requesting a cost-share waiver

iii) Contamination: Hazardous Substances

c. Location: Somersworth, Strafford County, New Hampshire

d. Property Information: Former Brenton's Cleaners
1 Winter Street
Somersworth, NH 03878

e. Contacts

i) Project Director: Shanna B. Saunders
Director of Development Services
City of Somersworth
One Government Way, Somersworth, NH 03878

Proud past, bright future

Office: (603) 692-9519
Email: ssaunders@somersworth.com

ii) Chief Executive/Highest Ranking Elected Official: Dana S. Hilliard
One Government Way
Somersworth NH 03878
Office: 603-692-9501
Home: 603-343-4114
dhilliard@somersworth.com

f. Population: 11,841

iii) Somersworth is not, nor is in a county experiencing “persistent poverty” where 20% or more of its population has lived in poverty over the past 30 years, as measured by the 1990 and 2000 decennial censuses and the most recent Small Area Income and Poverty Estimates.

g. Other Factors Checklist : Attached to the Cover Letter

h. Letter from the State or Tribal Environmental Authority: Attached to the Cover Letter

Respectfully,


Shanna B. Saunders
Planning Director

Other Factors Checklist

Appendix 3 Cleanup Other Factors Checklist

Name of Applicant: City of Somersworth

Please identify (with an **x**) which, if any of the below items apply to your community or your project as described in your proposal. To be considered for an Other Factor, you must include the page number where each applicable factor is discussed in your proposal. EPA will verify these disclosures prior to selection and may consider this information during the selection process. If this information is not clearly discussed in your narrative proposal or in any other attachments, it will not be considered during the selection process.

Other Factor	Page #
<i>None of the Other Factors are applicable.</i>	
Community population is 10,000 or less.	
The jurisdiction is located within, or includes, a county experiencing “persistent poverty” where 20% or more of its population has lived in poverty over the past 30 years, as measured by the 1990 and 2000 decennial censuses and the most recent Small Area Income and Poverty Estimates.	
Applicant is, or will assist, a federally recognized Indian tribe or United States territory.	
Target brownfield sites are impacted by mine-scarred land.	
Applicant demonstrates firm leveraging commitments for facilitating brownfield project completion, by identifying in the proposal the amounts and contributors of resources and including documentation that ties directly to the project.	X 10
Applicant is a recipient of an EPA Brownfields Area-Wide Planning grant.	

Letter from
State Env.
Authority



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Robert R. Scott, Commissioner

EMAIL ONLY

October 27, 2017

Robert Belmore, City Manager
City of Somersworth
One Government Way
Somersworth, NH 03878

**Subject: City of Somersworth
FY18 Proposal for EPA Brownfields Cleanup Grant
Breton Cleaners Property, Somersworth, New Hampshire
State Letter of Acknowledgement and Support**

Dear Mr. Belmore:

The New Hampshire Department of Environmental Services (NHDES) hereby acknowledges and expresses our support for the City of Somersworth's proposal for an EPA Brownfields Cleanup Grant for the Breton Cleaners property located in Somersworth, New Hampshire. It is NHDES' understanding that the City of Somersworth is applying for \$200,000 in hazardous substances cleanup funds.

Should your proposal be successful, NHDES will commit to providing a liaison to provide technical support, facilitate the process of reviewing and approving all cleanup related submittals to the Department and participate in any community outreach efforts.

We look forward to continuing our working relationship with the City of Somersworth on this important project. Please contact me should you have any questions.

Sincerely,

Michael McCluskey, P.E.
Brownfields Program
Hazardous Waste Remediation Bureau
Tel: (603) 271-2183
Fax: (603) 271-2181
Email: Michael.McCluskey@des.nh.gov

Waste
Management
Division

Digitally signed by Waste Management
Division
DN: cn=Waste Management Division,
o=NHDES, ou=Waste Management
Division,
email=lisa.newton@des.nh.gov, c=US
Date: 2017.10.30 14:42:05 -0400

ec: Shanna Saunders, City of Somersworth
Karlee Kenison, P.G., Administrator, NHDES-HWRB
Amy Doherty, P.G., NHDES-HWRB

www.des.nh.gov

PO Box 95, 29 Hazen Drive, Concord, NH 03302-0095

Telephone: (603) 271-2908 Fax: (603) 271-2181 TDD Access: Relay NH 1-800-735-2964

1. Community Need

1.a Targeted Area and Brownfields:

1.a.i Community and Target Area Descriptions:

Somersworth has the smallest area and third lowest population of the state's 13 cities. It is a small working class city located in the southern portion of Strafford County and across the Salmon Falls River from Berwick, Maine. Somersworth began as a grist and sawmill-centric community in the early 1800s. In 1822, Great Falls Manufacturing Company, a textile business with 3 mills, was established and other expansive brick mill buildings were later erected beside the river. Brick tenement row houses were erected for the immigrant workforce, and a thriving downtown emerged adjacent to the mills. As hydropower was replaced with newer forms of energy, the Great Depression sent many regional textile firms into bankruptcy, and few local facilities were able to adapt. The current (2014) manufacturing employment in the city is 1,148, about half its peak in 1990.¹

The Breton's Cleaners site is one of the buildings from Somersworth's industrial past with the prior owners abandoning the property leaving the City no choice but to address its contamination on our own. Located at the gateway from Maine into the downtown retail corridor, the Breton's Cleaners dilapidated structure is one of the most visible buildings from both the downtown Somersworth businesses and the Berwick, Maine downtown directly across the river. This blight is affecting the overall growth and revitalization of the downtown which is the target area for this grant (census block group 083001-2), where downtown businesses suffer, and there are vacant or severely underutilized spaces and substandard housing.

1.a.ii Demographic Information and Indicators of Need:

Somersworth's population of 11,841 residents is mainly young families, with the largest two population blocks between 30 and 40 years old and under 4 years old. Somersworth is a struggling blue-collar community. Somersworth residents are underemployed, exemplified by median household income of \$54,868 for the City and only \$29,484 in the downtown target area. This is significantly lower than the County average of \$60,711 and the State average of \$66,779. Somersworth's population is middle to lower class with 44% of the population making under \$50,000 per household and 43% of households being renter occupied (58% in downtown are renter occupied).² A majority of this rental community is located within walking distance to downtown and the historic mill infrastructure. Much of this housing is in aging structures over 75 years old that are in poor to bad condition and include building materials such as lead paint and asbestos. Nearly 47% of Somersworth school children are eligible for Free and Reduced lunch.³ The combination of poverty, low wages, and cheap substandard housing has created despair and an overall poor outlook for our target community. This has led to an increase in drug use as we are struggling with an epidemic of opioid use in the community epidemic with 103 recent overdoses, 10 of which were fatal in 2015, and 76 overdoses, 9 of which were fatal in 2016, an extremely high number for such a small City.

¹ New Hampshire Employment Security

² NH Division of Econ Development, www.choosenh.com

³ https://www.education.nh.gov/data/documents/lunch_district16_17.pdf

Demographic statistics comparing downtown census block & Somersworth to the State, and Nation are below:

	Census Block Group 083001-2	City of Somersworth	Strafford County	New Hampshire	United States
Population¹	977	11,841	125,273	1,324,201	316,127,513
Unemployment¹	NA	5%	6.5%	5.3%	8.3%
Poverty Rate¹	18.6%	13.5%	11.1%	8.9%	15.5%
Percent Minority²	8%	13%	8%	8.8%	37.87%
Median Household Income¹	\$29,484	\$54,868	\$60,711	\$66,779	\$53,889

1. Data are from the 2011-2015 American Community Survey 5-Year Estimates available on American FactFinder at https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml
2. Data are from the 2011-2015 American Community Survey 5-Year Estimates available on American FactFinder at https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Note, the percent minority is derived from the HISPANIC OR LATINO AND RACE population table (i.e., the sum of the Hispanic or Latino (of any race), Black or African American alone, American Indian and Alaska Native alone, Asian alone, Native Hawaiian and Other Pacific Islander alone, Some other race alone and two or more races percentages).

1.a.iii Description of Brownfields:

The Breton's Cleaners site in Downtown Somersworth is a 0.55 acre parcel with a 3,444 square foot wood-frame building constructed in the 1850's. It is highly visible as it is located at the gateway to downtown along Route 9 which is a major thoroughfare with 13,000 cars per day. It is bordered with downtown stores to the south and east, and single family home residential neighborhoods to the north and a 24 unit multifamily, elderly housing building to the west. Historically, the Site was used as a railroad freight depot originally owned by the Boston and Maine Railroad and then sold to Prime Tanning in 1974 who owned leather tanning mills across the River in Berwick, Maine. The property was then sold to the Breton Family in 1982 for use as a dry-cleaning facility. Poor handling of chlorinated solvents impacted soils and groundwater from dry cleaning machines and a leaking aboveground storage tank resulting in the owner abandoning the property. Recognizing the importance of revitalizing this key gateway location, the City saw no other option but to acquire the property by tax deed in 2016.

Somersworth's downtown is populated by underutilized brick mill buildings, some in converted-reuse and many dilapidated and abandoned. The former General Electric (GE) electric meter plant was the center of downtown for many decades; with housing, shops, and infrastructure constructed around it, and employing close to 2,500 people. The building was sold in 2016 to a solar meter company, who only occupies 2 of the 5 floors and employs only 400 people. Prime Tanning also owned a significant mill complex across the River in Maine that is currently undergoing brownfields cleanup thanks to EPA Brownfields Grants. The 200,000 sf structure, when it finally shuttered in 2008, included the loss of 150 jobs, some of which were residents of Somersworth. This has been typical of the loss of manufacturing in the City and has created a ripple effect on the downtown area as many buildings have been left to deteriorate or been abandoned altogether including two vacant gas stations, the Facemate site, the burned down bleachery/dyeworks, the former GE lot, and the former Chabot's dairy.

The closing of mills and loss of workforce on either side of the river has led to a lull in economic activity and the loss of investment downtown. The corridor that Breton's Cleaners sits on is a major thoroughfare. NH Rte 9 passes 13,000 cars a day.⁴ It is one of the only crossings of the Salmon Falls River in the area. Visibility of this currently blighted property is very high because of the traffic volumes. This however makes for great redevelopment potential, as will be discussed later. The presence of underutilized and unmaintained buildings then drags down the adjacent buildings and leads to the perception that this community can be bypassed and is not worth future investment. The revitalization of this property will be the spur that the area needs for property owners to invest in their downtown properties.

1.b Welfare, Environmental and Public Health Impacts

1.b.i Welfare Impacts

The Breton's Cleaners site sits nearly directly on the Salmon Falls River where Somersworth and several other communities draw their drinking water from. According to the 2012 EPA list of threatened or impaired waters 303(d), there are eight identified impairments for dissolved oxygen and pH levels along the Salmon Falls River. Brownfields such as the former Breton's Cleaners site and other sites reminiscent of the Mill era are now abandoned and in disrepair and contribute to the environmental health of the river and the overall blight of the community. The downtown has many spaces that can include outside seating areas that take advantage of the peek-a-boo river views, wide sidewalks, and high traffic counts for patrons. However, the blight of downtown has led to owners focusing their investment outside the downtown and into other neighboring communities. In essence, disinvestment in one building removes the incentive to invest in adjoining downtown buildings.

Brownfields in our downtown is also leading to increased sprawl focusing economic activity outside the downtown. Instead of housing being located within walking and biking distance from work, stores and restaurants, they must drive to outlying retail stores or adjacent communities. This poses a problem for residents of the adjacent elderly housing building, many of whom cannot drive.

While the site has a fence, clear evidence of trespassing is observable. The risk of direct exposure of children to contaminants is particularly high due to the site's status as an attractive nuisance. It is also close to residential neighborhoods where kids may wander through the yard and "explore" the derelict building and site. This building is currently being taken down to remove the eyesore as well as a danger to the neighborhood and the welfare of the residents, but contaminated soil and groundwater will remain until additional funding (i.e. this grant) can be obtained.

1.b.ii Cumulative Environmental Issues

Critical surface water bodies and aquifers are threatened by several cumulative environmental impacts within Somersworth. Somersworth's drinking water source is the Salmon Falls River, which

⁴ NHDOT Traffic volume report, www.nh.gov/dot

has 8 identified impairments, including dissolved oxygen and pH levels,⁵ attributable to stormwater runoff from residential and commercial sites (i.e., contaminated runoff from Brownfields), roadways within 250 feet of the shoreline, water-crossings, and failing septic systems.⁶ Somersworth ranks flooding as a significant hazard that may exacerbate existing contamination and further compromise dilapidated structures.⁷ The City's impervious surface coverage increased from 26% in 1990 to 42% in 2010, increasing water quality impacts.

In addition to Breton's Cleaners, Somersworth is home to a former municipal landfill superfund site, many old mill complexes along the river, abandoned gas stations, aging auto repair shops, and an older housing stock. Known contamination at the Breton's Cleaners site, likely not yet discovered contamination at the 1950s era former GE plant where mills once stood and the abandoned gas stations/auto repair facilities, and likely lead contaminated soil from the older housing stock (i.e. lead paint) within the downtown each have a cumulative environmental impact, in particular to the Salmon Falls River. An active railroad passes through downtown and commuter traffic congestion also contribute to PAH and other pyrogenic contaminants in downtown.

1.b.iii Cumulative Public Health Impacts

The densely settled downtown Somersworth experiences high levels of traffic congestion leading to air quality issues that raise health concerns. Air quality impacts can have profound, systemic impacts on sensitive populations in particular. In Strafford County, 10.6% of both adults and children have asthma compared to 7% and 8.3% nationally. In NH, the asthma hospitalization rate for children under 4 and adults over 65 years is 188 and 127, respectively, per 100,000 persons. In 2010, 24,349 children with asthma were treated in NH. Researchers estimate that the environmentally attributable fraction for asthma to be 30%.⁸

The median housing age in the downtown area is 78 years which indicates likely impacts from lead which can cause permanent neurological damage in children. EPA's Environmental Justice (EJ) mapper shows that Somersworth⁹ ranks in the: 80-90th percentile nationally for lead paint; 90-95th percentile for superfund proximity; and 90-95th percentile for water discharger proximity. Many existing public health impacts increase the population's vulnerability to area environmental issues. According to NH Division of Public Health Services¹⁰, New Hampshire has the oldest housing stock in the US with 62% of homes built before 1978 and in 2015 660 NH children were poisoned by lead. Somersworth is one of NH's 21 Highest Risk Communities for lead.

Clean up of this site and redevelopment including the Riverwalk extension will help provide community recreation opportunities, which are currently unavailable in the Downtown. This is leading to increased obesity of our adults and children who live in close proximity to the

⁵ EPA 303(d) list (2012).

⁶ USGS

⁷ Somersworth Multi-Hazard Mitigation Plan, 2016.

⁸ Asthma Burden Report Update New Hampshire 2014. <http://www.dhhs.nh.gov/dphs/cdpc/asthma/documents/asthma-burden-2014.pdf>

⁹ Block Group #330170830015

¹⁰ www.dhhs.nh.gov/dphs/bchs/cipp/

downtown. In 2009, 36.5% of adults in New Hampshire were overweight and 26.3% were obese.¹¹

1.c Financial Need

1.c.i Economic Conditions

The Breton's Cleaners site has remained vacant for more than a decade. Numerous attempts were made by the City to require the hazardous materials be cleaned up or the building maintained. The owners did not comply, so the City is now having to deal with the economic burden of cleaning up the site. To make things worse, the City will never collect the \$102,546 in outstanding taxes that we now need to make up in other areas.

Somersworth is a small City both geographically and economically. It only has approximately \$848M in valuation (as opposed to Dover to our south with \$2.9B in valuation and Rochester to our north with approximately \$1.9B in valuation) yet still needs to provide the services of most larger cities including carrying the cost of a Fire Department, Police Department, and School Department. We are dedicating significant resources to responding to the opioid epidemic, and work under a tax cap which limits the amount of spending increase the Council can approve each year. Somersworth already has a tax rate higher by a double digit percentage than either of these neighboring towns.¹² Our revenue stream relies only on property taxes in lieu of an income tax or a sales tax (both of which are 0% in New Hampshire). In addition, City expenditures have been rising due to rising healthcare costs, State downshifting of retirement costs, and loss of State school and building-aid costs, which now have to be covered exclusively by property taxes. This has led to a school deficit of \$637,000 in the 2018 fiscal year. We simply do not have the excess capital to deal with this site by ourselves.

Somersworth's unemployment rate is also the highest of both of our neighbors.¹³ According to MIT's living wage calculator, in a family of 4 with 2 working parents each parent needs to make \$15.13 an hour to provide appropriately to the household. New Hampshire's minimum wage is \$7.25.¹⁴ In addition, New Hampshire is one of the most expensive states to buy heating fuel, with our prices significantly higher than the national average¹⁵. Fuel Assistance to the needy in Somersworth tops \$1500 each year. This has lead Somersworth citizen to vote in a tax cap and still the ability to pay property taxes – the City's primary revenue source – is a struggle for many in the community. There are currently 165 properties that have Tax Liens for non payment. That is 4% of the total properties in the City. Somersworth's unique economic conditions coupled with the loss and replacement of jobs with low paying wages has further eroded our ability to pay for Brownfields clean-up in our community.

1.c.ii Economic Effects of Brownfields

¹¹ New Hampshire Department of Health and Human Services Division of Public Health Services, Obesity Prevention Program <http://www.dhhs.nh.gov/dphs/nhp/obesity.htm>

¹² NH Dept. of Revenue <http://revenue.nh.gov/mun-prop/municipal/property-tax-rates.htm>

¹³ NH Division of Econ Development, www.choosenh.com

¹⁴ <http://livingwage.mit.edu/counties/33017>

¹⁵ <https://www.eia.gov/state/data.cfm?sid=NH>

Downtown Somersworth suffers from high vacancy rates, blighted properties, and underutilized former Mill and Industrial buildings. The now vacant or deteriorated properties include not only the Mills but 1800's era storefronts and multifamily row housing that depress property values in the entire downtown. For example, the half-acre Breton's Cleaners site is currently only assessed at \$42,400. However, a similar 0.85 acre single-business commercial property located outside the downtown on at 500 High Street, is assessed at \$339,600.

Somersworth is a historic industrial mill town that has seen a loss in high paying manufacturing jobs as manufacturing has moved overseas because of NAFTA. The loss of the GE Plant, which once employed 2,500 workers, has had a deleterious effect on our downtown which now has many empty storefronts and derelict multistory former GE employee housing units within walking distance to the plant and downtown. Somersworth's unemployment rate is also the highest of both of our neighbors.¹⁶ Somersworth's current economic conditions coupled with the loss and replacement of jobs with low paying wages has further eroded our ability to respond to the effects of the Brownfields in our community without outside assistance.

2. Project Description and Feasibility of Success

2.a. Project description

2.a.i Existing Conditions

Breton's Cleaners began operating a coin-operated and commercial laundry and dry cleaning business at the Site in 1982. Tetrachloroethylene (PCE) was used in the dry cleaning process during that period of time. Dry cleaning operations reportedly ceased in 1990, although other operations may have occurred until 1994. Information suggests that the building has been vacant since operations ceased in the early to mid-1990s. The City acquired the Site in 2016 for back taxes after completion of a Phase I Environmental Site Assessment. The building was demolished in November 2017 with State DES Revolving Loan funds. Proposed redevelopment includes a commercial/retail site with Riverwalk extension. A summary of previous investigations from the Phase I Assessment is as follows.

As part of a limited subsurface investigation in May 2004, several test borings and four groundwater monitoring wells (two overburden and two bedrock) were installed at the Site. Soil and groundwater samples collected during the investigation indicated the presence of chlorinated volatile organic compounds (cVOCs), namely PCE, in soil and overburden groundwater at concentrations exceeding NHDES standards. The highest groundwater concentration (3,600 micrograms per liter) was detected north of the site building. The highest soil concentration (260 milligrams per kilogram [mg/kg]) was detected in a boring performed beneath the site building where the former dry-cleaning machinery was located (eastern portion of the site building).

A Sub-Slab Soil Gas and Indoor Air investigation was conducted in December 2005, additional Groundwater Assessment was conducted in June 2007, and supplemental investigations including a hazardous building materials survey were conducted in 2015 and 2016 that

¹⁶ NH Division of Econ Development, www.choosenh.com

concluded a source of PCE and lead was present in soil beneath and just outside the building that was estimated to be approximately 310 cubic yards in volume. No vapors were identified in nearby buildings but the plume of PCE in groundwater appeared to have expanded from the earlier investigations approaching the northern property boundary indicating the adjacent Salmon Falls River may be at future risk if this contamination is not addressed in short term. Asbestos and lead paint were also identified throughout the site building, but due to the dilapidated condition of the building, the entire unsafe building will be required to be abated as asbestos containing debris.

2.a.ii Proposed Cleanup Plan

An Analysis of Brownfields Cleanup Alternatives (ABCA) for the former Breton's Cleaners Site was prepared by the NH Department of Environmental Services (DES) in December 2016 and the City of Somersworth (attached). Areas of targeted remediation include: 1) the abatement by demolition of asbestos and lead paint on the building structures; 2) the removal of containerized hazardous materials and universal waste located within the building; 3) excavation and off-site disposal of 310 cubic yards of PCE- and lead-contaminated soil; and 4) monitored natural attenuation (MNA) of PCE-contaminated groundwater. The current estimated cost range to implement the above remedial tasks is between \$304,600 and \$456,000 including one round of post remediation groundwater monitoring.

Due to the dilapidated condition of the building, a thorough subsurface investigation has not been feasible under the building to confirm the volume of soil that requires excavation. Where the building is planned to be demolished in November 2017, the NHDES has also planned supplemental soil borings to be conducted to further characterize the nature and extent of the source area using a NHDES Brownfields RLF subgrant. If it is determined that it is infeasible to excavate all of the contaminated soil due to the proximity to the railroad, other remedial options (in addition to MNA) may be evaluated to further clean up the site. The Strafford Regional Planning Commission (SRPC) Brownfields Assessment program has committed spending up to \$3,500 of their Brownfields assessment grant funds to consider options such as chemical oxidation as alternatives and to update the ABCA with any new data collected.

Please note that each of these cleanup actions will be completed in accordance with New Hampshire DES Env-Or 600 (Soil Remediation Standards), NHDES Env-Sw 900 (asbestos), and Env-Wm 100-1000 (lead paint). During cleanup activities and building abatement, engineering controls will be utilized, including area containment during asbestos and lead paint abatement, dust suppression during soil removal activities, and the use of temporary fencing to protect the public during construction activities. Contaminated soil would be brought to the closest appropriate hazardous waste landfill or treatment facility for disposal/recycling.

During clean up, barrier fencing will be used to secure the site to protect the public during cleanup and demolition activities. Environmental engineers will specify the appropriate handling and disposal of all hazardous materials and would continue to monitor the site after cleanup is complete in accordance with NHDES requirements. Areas with excavation and contaminated soil removal will be back filled with clean soil and raised back to normal ground

levels. The community involvement portion of the project (see below) will be used to inform area residents of work to be completed.

To assure proper cleanup, specific details of the process would be distilled into an RFP for bidders who would compete to clean up the property. Institutional controls in the form of a deed restriction will be filed (if required) with the Strafford County Registry of Deeds to ensure that future construction, remediation, or landscaping at the property do not disturb contaminated soils, such as the installation of utilities, where necessary, and will prohibit the extraction of contaminated groundwater. This will help ensure that future occupants of the property are aware of any contaminated soil or groundwater remaining below-grade at the site.

Once remediation is completed, a remediation summary report will be submitted to the NHDES. A "Certificate of Completion" will be obtained from the NHDES documenting that the cleanup was completed in accordance with state standards.

2.a.iii Alignment with Revitalization Plans

Cleanup of this site is also in keeping with the City's Master Plan and Vision 20/20 which advocates for "continued revitalization of downtown". It also is in line with a 2009 and 2017 planning charrette the City did for the downtown that envisions a Riverwalk and "streetscape to capture 1 in 20 cars to stop/shop downtown". The 2017 Plaza Redevelopment Commission appointed by the Mayor will make recommendations that directly affect businesses all along Main and High Streets in the downtown. The City envisions the Site to be redeveloped into a critical gateway commercial property with a Riverwalk extension that takes advantage of its downtown location and waterfront views and fits into the fabric of the downtown community. The City has been approached by several interested parties regarding the status of the cleanup and availability for redevelopment of the Site because of the high traffic volumes and proximity next to the River. This property is located in the Business Zoning district which allows restaurants as well as office and retail uses (which could occupy the second and/or third floors). In addition, the City is planning the extension of the Riverwalk from the downtown to the western residential neighborhood which would pass right through this property and connect to the downtown south of the Site.

This project aligns perfectly with the Livability Principles by improving economic conditions, investing in the health and safety of our community's residents, and investing in rural downtown New England landscapes. Existing utilities including City Water and Sewer and natural gas will be reused for onsite redevelopment, and public parking is available next to the site.

2.b Task Description and Budget Table

2.b.i Task Descriptions

The proposed cleanup of the site involves four primary tasks. The first task is cooperative agreement oversight and engineering. The City will prepare a request for qualifications, interview and contract with a qualified environmental professional (QEP) to support community involvement, project planning and engineering, and other general grant tasks (e.g.

ACRES), and provide general grant management activities. The QEP will prepare appropriate technical plans and specifications to support the cleanup, assist the City with competitively bidding the cleanup work to environmental contractors, and will assist the City with Davis-Bacon Act compliance, quarterly reporting, etc. The City will also attend the next EPA Brownfields Conference (\$1,600 in travel). We have budgeted 80 hours of City staff time at \$46/hour (\$3680) as well as 60 of QEP time at \$100/hour (\$6000) to oversee and the grant and complete the necessary engineering tasks.

The second task will include the development and implementation of a community relations plan (CRP). The City will provide resources to prepare newsletters, post public meeting notices, hold quarterly public meetings, and develop an informational repository. The QEP will prepare the CRP for the City, NHDES, and EPA review, and will prepare and present cleanup specific materials at public meeting(s). The City will prepare public outreach documents, maintain meeting minutes, attendance sign-in sheets, etc. The public will be involved through a pre-remediation public meeting, updates to the City Council during and following cleanup, and through the City's website. We have budgeted 100 paid hours of City staff time at \$46/hour (\$4600), and 50 in kind hours as well as 60 hours of QEP time at \$100/hour (\$6000) to perform community involvement tasks.

The third task is cleanup activities that will include the excavation and disposal of PCE and lead-contaminated soil. An estimated 310 cubic yards (i.e. approx. 465 tons) of shallow PCE-contaminated soil is currently present beneath the building footprint at the site that is serving as a continuing source of groundwater contamination. This task will also include one round of post-remedy groundwater monitoring to preliminarily evaluate that the source removal remedy was successful in eliminating the mass of contamination and to provide post-remedy groundwater quality data to support future decisions regarding MNA and/or other remedial options for the cleanup of groundwater. The City will assist the cleanup with coordinating with local utilities, the railroad, and assist with site security. We have budgeted 80 hours of City staff time at \$46/hour (\$3680), used budgetary estimates from prior studies for excavation and disposal, estimated appropriate backfilling and site restoration, (\$144,760) and estimated 200 hours of QEP staff time at \$100/hr (\$20,000) to conduct the cleanup tasks.

The fourth task will consist of coordinating and reporting the cleanup to the NHDES and EPA, as well as the preparation and filing of any required deed notices, long term groundwater management plans, etc. We have budgeted 80 hours of City staff time at \$46/hour (\$3680) as well as 60 hours of QEP time at \$100/hour (\$6000) to coordinate and prepare the necessary reports and documents.

2.b.ii Budget Table

Breton's Cleaners Brownfields Cleanup Budget					
Budget Categories	Task I) Cooperative Agreement Oversight & Engineering	Task II) Community Involvement	Task III) Cleanup Activities	Task IV) Coordination & Reporting	Total

Personnel	\$3680	\$4600	\$3680	\$3680	\$15,640
Travel	\$1,600	\$0	\$0	\$0	\$1,600
Equipment	\$0	\$0	\$0	\$0	\$0
Supplies	\$0	\$0	\$0	\$0	\$0
Contractual	\$6000	\$6,000	\$164,760	\$6,000	\$182,760
Total	\$11,280	\$10,600	\$168,440	\$9,680	\$200,000
Cost Share (20%)	\$0	\$0	\$40,000	\$0	\$40,000**

*** Note that the cost associated with abating hazardous building materials by demolition is being funded by a NHDES Brownfields RLF subgrant.**

****Funding has been appropriated by City Council.**

2.c Ability to Leverage

The City has been very successful at leveraging other funding to implement our goals. As mentioned, the City's Master Plan and Vision 20/20 recommends "continued revitalization of downtown". With the help of a \$460K Transportation Enhancement grant from the Federal Highway Administration, the City has recently invested \$4M in the downtown infrastructure immediately in front of the Breton's Cleaners site. This work included bike lanes, crosswalk relocation, sidewalks, landscaping, pavement, utilities, and pocket parks. In addition, the City worked with the State of Maine and NHDOT on a \$3M project to update the Somersworth NH – Berwick ME bridge that crosses the Salmon Falls River, all of which has dramatically increased the marketability of the Site and downtown as a whole. Specific to Breton's Cleaners, we have previously leveraged NHDES Brownfields program to perform the environmental assessments and provide guidance to the City prior to Site acquisition. Additional leveraged resources that will be utilized for this project include:

Source	Purpose/Role	Amount (\$)	Status
NHDES RLF Subgrant	Asbestos/Lead Abatement, additional characterization, temporary engineered barrier	\$178,000	Secured
SRPC Brownfields Assessment	Funding for additional cleanup planning	\$3,500	Secured
Private Investment	Redevelop Site	\$2,000,000	Pending cleanup of the site
SRPC Brownfields Assessment	Funding for groundwater monitoring	\$3,500	Pending receipt additional assessment grant funds

SEDC RLF	Funding for additional cleanup	Unknown gap amount	Pending RLF grant award
NHDES RLF	Funding for additional cleanup	Unknown gap amount	Potential

The City has already received two informal proposals from private investors interested in redeveloping the site for retail/restaurant once cleanup is complete.

3. Community Engagement and Partnerships

3.a Engaging the Community

The City is partnering with several business and community organizations to make sure that the community is involved in the planning and implementation of the remediation and redevelopment of the Breton's Cleaners site. The City will have a dedicated page off of the City's website where it will post information and reports that relate to the site, its cleanup and its redevelopment. Residents will have the opportunity to email City staff from the website with comments or questions. Information will go out in the quarterly newsletter and as-needed in email blasts and/or updates to the televised City Council meetings. The City Manager and Planning Director will be the points of contact and an information repository for the project has already been established at the Planning Department and in the NHDES' Onestop database. Feedback from the outreach will be incorporated in the remediation work plan and redevelopment.

In addition, the Breton's Cleaners' property is within walking distance of City Hall. For those folks who do not have access to the internet, the City will put up a standing display of the site in the foyer with information regarding cleanup and redevelopment. The City used this information dissemination technique during the downtown redevelopment project with much success. The City Manager and Planning Office are both located in the City Hall building and will be easily accessible by the public, residents, and business owners for questions and more information regarding any concerns they have with health and safety of the cleanup process. The City is very hands on with its citizenry with Mayor's office hours at least once a week, and Mayor's Community Forums at least once a month, so the public is very comfortable coming down to the fully accessible City Hall to have a conversation.

The City will erect a sign on site with phone numbers of City staff that residents or business owners can call in case of questions or concerns. Should interpreters for our community members who do not speak English or communication aids (visual aids for deaf/hard of hearing, etc.) be required, the City will provide those at appropriate meetings. Should any issue arise that is deemed unsafe for residents, business owners, or sensitive populations the City will immediately halt work until the QEP, environmental contractor, and NHDES can be conferred to determine a resolution and it is determined to be safe to continue. Feedback from the outreach will be incorporated in the remediation work plan and redevelopment.

3.b Partnerships with Government Agencies

The City has been in constant contact with the NHDES Brownfields program staff, including Michael McCluskey, P.E. regarding this site. NHDES will be present at any public forums and will be on site on a regular basis. NHDES is a resource the City will call on should they need additional expertise. We will also continue our work with SRPC and their Brownfields Advisory Group. (letter of support attached) This is a regional group of interested parties including real estate and housing professionals, environmental and health professionals, and City and Town representatives. They offer a diverse set of networks that we can use to get the word out about this cleanup proposal and help answer any questions or concerns that come up.

3.c Partnerships with Community Organizations

3.c.i Community Organization Descriptions & Roles

The Somersworth Housing Authority (SHA), represents the closest residential property, an abutter, the Queensbury Mill, a 24-unit multifamily elderly housing building. The Housing Authority will act as a liaison to this residential population conveying information regarding the cleanup and collecting concerns from residents to bring to the City. They have agreed to distribute information and meeting notices to their residents both at the Queensbury Mill and at other SHA locations around the City. This community will be especially important as the cleanup proceeds as they are very close to the site location. The City will make sure to incorporate their concerns into the remediation work plan and redevelopment of the site.

The Breton's Cleaners site frontage looks up towards the rest of the downtown businesses. Because of that, an important stakeholder will be the downtown business community. In order to inform and engage this community we will partner with the Greater Somersworth Chamber of Commerce. The Chamber is also located downtown next to City Hall and within walking distance from the Breton's Cleaners' property. They have agreed to post information and meeting notices on their website, in their newsletter and to being a clearing house for the downtown business community and bring back to us any concerns or questions. They have also agreed to host a meeting at their location.

The City will partner with Strafford Economic Development Corporation (SEDC) on the redevelopment of the site. The SEDC is the region's leading nonprofit for small business financial assistance. Their mission is to support projects that create new jobs or secure existing jobs. They will provide assistance in helping to identify businesses to locate at the site and supply funding to business to redevelop and occupy the site. SEDC has also applied for a Brownfields RLF and they have agreed to provide gap subgrant funding as necessary to help complete the cleanup project.

3.c.ii Letters of Commitment

Letters of commitment from each of the listed community organizations affirming their roles are attached.

3.d Partnerships with Workforce Development Programs

The City's Economic Development office currently partners with the New Hampshire Employment Security office and will continue to throughout this project. In addition, the City has a long standing local hiring and procurement process. The City's Personnel Rules in section 6.I Equal Opportunity for Hiring and Promotion allows for preference to be given to citizens of the City of Somersworth when all other qualifications are equal. In addition, the City's purchasing policy allows that in the event of a tie for low bid, preference for award shall be given first to any bidder who is located within the City of Somersworth. If none of the bidders are located in the City of Somersworth, preference shall then be given to any bidder located within the State of New Hampshire.

4. Project Benefit

4.a Welfare, Environmental, and Public Health Benefits

Based on the physical hazards present relative to the Site building and the location of the Site, current Site conditions pose risks to both human health and welfare if nothing is done on the site. In its current state, the Site presents a threat of exposure to chlorinated solvents to sensitive populations such as children and the elderly in neighboring residential developments. By obtaining EPA funds the soil and groundwater issue will be mitigated making the site safe for abutters such as the adjacent Somersworth Housing Queensbury Mill and residential neighborhoods as well as the commercial abutters.

In addition, cleanup will prevent future migration of vapors into nearby buildings which add to air quality issues and groundwater contamination into the nearby Salmon Falls River that is the drinking water supply for Somersworth and other neighboring communities. This will have an impact on the high asthma rates.

Lastly, the incorporation of the Riverwalk into the project will provide investment, connectivity and recreational opportunity for the surrounding residential neighborhood to the downtown. It will provide opportunities for exercise and helping to reduce obesity in the community while also providing access to nature along the river and spurring potential investment from surrounding property owners. A new business at this site may encourage other properties, such as the former GE plant, or the abandoned BP Gas Station to mitigate hazards and redevelop.

4.b Economic and Community Benefits

In the past several years, many investors have proposed redevelopment projects in Downtown Somersworth including renowned Mill-reuse developer Chinburg Properties and a restaurateur from our uber-successful foodie neighbor, the City of Portsmouth who has opened a gastro-pub and breakfast restaurant in an historic train station in downtown. An outcome of this site's redevelopment would be the addition of 5 to 10 new jobs downtown; however, the ripple effects would be even greater with the re-tenancy of vacant storefronts bringing in the potential of a dozen or more small businesses and jobs. In addition, by putting this property back on the tax rolls the city may expect between \$6,000 - \$7,000 in tax revenue from the property per year. Clean up and reuse will turn a blighted property in to a redeveloped property removing an eyesore in the heart of Downtown that impedes future investment in the area.

Finally, cleanup of this contaminated site will benefit not only public health as it relates to the drinking water but the natural resource system as well. There are several parks downstream where hiking and fishing are commonplace. An outcome of cleanup will be the benefit of cleaner water and fish stocks at the community's outdoor recreation sites.

5. Program Capability and Past Performance

5.a Audit Findings

No adverse audit findings were associated with any Grants received and managed by the City of Somersworth.

5.b Programmatic Capability

Somersworth's organizational structure is as follows: The City of Somersworth operates under a Council-Manager form of government, whereby the City Manager serves as the Chief Administrative Officer. The City Manager is appointed by the City Council and is selected solely on the basis of executive and administrative qualifications. As the Chief Administrative Officer of the City, the City Manager is responsible for overseeing all day-to-day City operations, insuring financial stability, fostering sound financial management practices, ensuring operational efficiency, and maintaining the City's overall commitment to providing high quality services to the community.

Project Oversight

City Manager, Robert M. Belmore is qualified to oversee the management of this Grant. He is an ICMA credentialed manager who has over 30 years of experience in local communities. He is the chief administrative official in Somersworth. He is responsible for all City Staff and City Departments including: Development Services, Finance & Administration, Public Works & Utilities, Police, and Fire. Mr. Belmore has successfully assisted in the management of many City Grants, and has worked with NHDES and EPA Region 1 staff on this particular property.

Project Management

Shanna B. Saunders, Director of Planning & Community Development, will serve as the project manager for this Grant. She has directed several other federally funded grants in Laconia NH where she worked previously including an NHDOT TAP grant, LWCF grant and several NHDES drinking water and watershed grants and is familiar with the Brownfields program through assessment projects conducted in both Laconia and Somersworth, and the current NHDES RLF subgrant.

Grant Support

The financial management of all Grants administered by the City is done by Scott A. Smith who serves as the Director of Finance and Administration. Mr. Smith has been working in this capacity since 2006. As needed, further support will be provided by the Director of Public Works & Utilities, Mike Bobinsky and Legal Counsel will be provided by City Attorney, Walter Mitchell, as well as special Environmental Legal Counsel, Mark Beliveau, Esq. Qualified Environmental Professionals (QEP) will be a large part of the support team.

Procurement

In the case where additional expertise is required, the City utilizes a competitive procurement process. This includes public solicitation of proposals, receiving proposals from multiple firms, evaluating the firms based on established criteria, and awarding a contract to the firm that best meets those established criteria.

5.c Measuring Environmental Results: Anticipated Outputs and Outcomes

The anticipated outputs from Tasks 1 and 2, include a Request for Qualifications, Community Relations Plan, technical specifications, bids, and contracts. Outputs associated with Task 3 will include QEP oversight field notes and waste manifests. Outputs from Task 4 will include a Remedial Action Implementation Report, and depending on data obtained following the upcoming building demolition, may include an updated ABCA. The anticipated outcomes for this cleanup project include leveraging federal and State funds and other resources, leveraged cleanup jobs, 0.55 acres of land ready for reuse, increased tax base, create new business(s) and jobs, reduced local blight and increase area tenancy, reduced urban sprawl by repurposing the Site, at least one public meeting, and the mitigation of exposure to 465 tons of contaminated soil. Data will be input in ACRES and quarterly report will be submitted per the grant contract.

5.d Past Performance and Accomplishments

The City of Somersworth has not received a Federal Brownfields Grant before, however we have received grants from various state and federal agencies totaling more than \$1M dollars. Please see the bulleted list below for purpose and compliance with previous grants. In all cases we have complied with all grant requirements, completed the grant on time, and met all reporting requirements. The chart below gives a sample of grants received.

- 2017 NHDES - Brownfields Cleanup Revolving Loan Fund – Cleanup Subgrant for \$178,000 building materials abatement and a temporary engineered barrier system. Work under this grant is currently in process. Anticipated completion December 2018.
- 2012 NHDOT – Transportation Enhancement Program for \$460,790 Grant plus 20% City match for walking, biking, aesthetic improvements to the City of Somersworth downtown area. Completion in 2015. ADA compliant pedestrian crosswalks. Full compliance with grant requirements and timelines.
- 2014 State of NH DRED – Land and Water Conservation Fund Grant of \$28,500 with 50% City match for the development of the Mast Point Dam Recreation area. Completed in 2015 including canoe/kayak boat launch, new parking and boat loading area, trail map and info kiosk, and ADA compliant trails. Full compliance with grant requirements and timelines.
- 2014 – Somersworth/Berwick Bridge Project, total project cost of \$3,200,000, funded with \$500,000 Federal Earmark funded through NHDOT, \$1,150,000 funded through NHDOT with Federal Bridge Aid and Federal Rail Road programs, balance funded with 20% City match and 50% State of Maine match, for the replacement and improvement of the Somersworth/Berwick Bridge and Rail Road crossing. Full compliance with grant requirements and timelines.



Cocheco Falls Millworks
100 Main St., Suite 101
Dover, NH 03820

Strafford Economic Development Corporation

(603) 749-2211
(603) 749-2221
www.sedcnh.org

October 30, 2017

Shanna Saunders, Director of Development Services
City of Somersworth, NH

Re: Brownfield Clean-up Grant, Breton's Cleaners Project

Dear Shanna:

On behalf of the Strafford Economic Development Corporation (SEDC) of New Hampshire, please accept this letter of commitment for the application for a Brownfield Clean-up Grant - Breton's Cleaners Project, being submitted soon. The proposed work is consistent with and supportive of SEDC's goals of job creation and retention throughout the region.

Working to spur the redevelopment of brownfield properties for industrial, commercial, residential, and green space in ways that prevent or control exposure to contaminated conditions is a worthy effort. Through these efforts, your community will be revitalized, job opportunities created or expanded, and public health and the environment protected. The application for this grant proposes a structured approach to achieve these goals.

The SEDC commits to providing assistance to the City of Somersworth to identify businesses to locate at the treated site and supply funding to businesses to redevelop and occupy the site upon completion.

Thank you for your efforts on this.

Sincerely,

A handwritten signature in dark ink, appearing to read "Dennis McCann", is written over a light blue horizontal line.

Dennis McCann
Executive Director



ESTABLISHED 1961

Deborah I. Evans
Executive Director

Public Housing - Community Development - Social Services
Somersworth Housing Authority
25 Bartlett Avenue, Suite A • PO Box 31 • Somersworth, NH 03878



October 30, 2017

Shanna B. Saunders
Director of Planning and Community Development
City of Somersworth
One Government Way
Somersworth, NH 03878

Dear Mrs. Saunders:

Somersworth Housing Authority would like the opportunity to express our support for the City of Somersworth's pursuit of the EPA's Brownfields Clean up grant for the former Breton's Cleaners property. Our 24-unit, elderly/disabled housing development, Queensbury Mill Apartments, is located next to Breton's Cleaners on Market St.

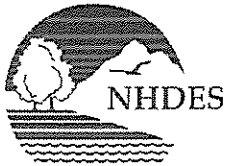
We believe in the valuable rehabilitation project set forth by the City and look forward to seeing its success. We commit to partner with the City in performing important communication duties such as meeting with the residents to inform them of City project meetings, timelines and schedules; hearing their concerns and relaying such concerns or issues back to the City for consideration; and distributing all materials needed for documentation purposes. Whereas communication is always key to any project, keeping the residents informed is crucial.

Should you have any questions or require any further information please feel free to contact me at 603-692-2864 x318. Thank you in advance for your assistance and consideration.

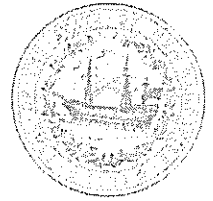
Sincerely,

Deborah I. Evans
Executive Director

Cc: file



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

EMAIL ONLY

December 16, 2016

Robert M. Belmore, City Manager
City of Somersworth
One Government Way
Somersworth, NH 03878

Subject: Somersworth - Breton Cleaners Property, 1 Winter Street
DES Site #200411112, Project #14261

Brownfields Revolving Loan Fund – Cleanup Grant

Dear Mr. Belmore:

The New Hampshire Department of Environmental Services (Department) is pleased to inform the City of Somersworth of our intent to award a cleanup grant from New Hampshire's Brownfields Revolving Loan Fund (RLF). The Department intends to award \$178,000 for the purpose of funding a portion of the remediation of the Breton Cleaners property in Somersworth, New Hampshire. Specifically, the funding will be used for building demolition and hazardous materials abatement. The Department acknowledges that the City is concurrently applying for an EPA Brownfields Cleanup Grant for the balance of the remediation costs.

Awarding of this grant is contingent upon receiving Governor and Executive Council (G&C) approval. The Department will be forwarding the grant documents to the City in January 2017 for your review. Once the documents have been executed and returned to the Department, we will proceed with requesting G&C approval.

Should you have any questions in the interim, please contact me at the Department's Waste Management Division. We look forward to continuing our work with the City of Somersworth on the successful cleanup of the Breton Cleaners property.

Sincerely,

Michael McCluskey, P.E.
Brownfields Program
Hazardous Waste Remediation Bureau
Tel: (603) 271-2183
Fax: (603) 271-2181
Email: Michael.McCluskey@des.nh.gov

ec: Michael Wimsatt, P.G., Director, WMD
H. Keith DuBois, P.G., Asst. Director, WMD
Karlee Kenison, P.G., State Sites Supervisor, HWRB

BARRINGTON
BROOKFIELD
DOVER
DURHAM
FARMINGTON
LEE
MADBURY
MIDDLETON
MILTON



NEW DURHAM
NEWMARKET
NORTHWOOD
NOTTINGHAM
ROCHESTER
ROLLINSFORD
SOMERSWORTH
STRAFFORD
WAKEFIELD

October 30, 2017

Shanna B. Saunders
Director of Development Services
City of Somersworth
One Government Way
Somersworth, New Hampshire 03878

Dear Ms. Saunders:

On behalf of the Strafford Regional Planning Commission (SRPC), Rochester, NH, please accept this letter of commitment for the City of Somersworth's Brownfields Cleanup grant application for the former Breton Cleaners facility on Winter Street.

As a political subdivision of the State of New Hampshire, SRPC serves in an advisory role to local governments and community organizations. It is our mission to assure that the region is responsive to the needs of its residents through cooperation with federal and state agencies and its member communities, through the implementation of SRPC's policies and plans, and through local planning assistance. SRPC aims to support sustainable development and improve the quality of life in the region, balancing economic progress with environmental protection and community well-being.

SRPC recognizes the negative impact of brownfields in our communities and the region. The Breton Cleaners facility in Somersworth, NH is included on the priority project list contained in the Strafford Economic Development District's Comprehensive Economic Development Strategy (CEDS). One benefit of the Breton Cleaners project is that its proposed cleanup will minimize the spread of groundwater contamination. Protecting and remediating groundwater is critical to supporting public health, the environment, a viable economy, and the quality of life in the region.

SRPC commends the City of Somersworth for proposing this cleanup project, which will result in a new commercial building, contribute to business attraction in the downtown, and create jobs. SRPC is the recipient of an EPA Brownfields Assessment Grant and commits \$3,500 to provide additional cleanup planning support to Somersworth prior to its expiration in September 2018. SRPC is applying for a new assessment grant to begin in October 2018, and, if awarded, could provide a similar amount to support additional cleanup planning. SRPC also commits up to \$1,000 (approximately 20 staff hours) of in-kind technical assistance, including education and outreach related to Brownfields, site-specific cleanup, and redevelopment.

Please contact me at (603) 994-3500 or cjc@strafford.org if you have any questions.

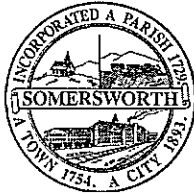
Sincerely,


Cynthia J. Copeland, AICP
Executive Director

Threshold Criteria

SOMERSWORTH, NEW HAMPSHIRE

City of Somersworth
One Government Way
Somersworth, NH 03878



City Hall
603.692.4262
www.somersworth.com

Attachment A - Threshold Criteria

Please accept our Threshold Criteria for the 2017 Brownfields Cleanup Grant Submittal.

- 1) Applicant eligibility –
 - a) We are a General Purpose Unit of Local Government, Somersworth NH
 - b) Our DUNS number is 069-911-980
- 2) Site Ownership –
 - a) The City of Somersworth took the property by tax deed on December 19, 2016. We included the Tax collector's deed as an attachment.
- 3) Basic Site Information –
 - a) The site is the former Bretton's Cleaners property at (b) 1 Winter Street, Somersworth NH 03878
 - c) The City of Somersworth owns the site
- 4) Status and History of Contamination –
 - a. this site is contaminated by hazardous substances;
 - b. the site was formally used as a drycleaner. It is currently vacant and has been for 20+ years.
 - c. soil and groundwater at the site are contaminated by chlorinated solvents.
 - d. the site was contaminated by dry cleaning operations resulting in chlorinated solvents penetrating through the building foundation and/or discharges to the ground surface.
- 5) Brownfields site definition – The site meets the definition of the Brownfields.
 - a) the site is not listed on the National Priorities List
 - b) the site is not subject to unilateral administrative orders, court orders, administrative orders on consent, or judicial consent decrees issued to or entered into by parties under CERCLA; and
 - c) the site is not subject to the jurisdiction, custody, or control of the U.S. government.
- 6) Environmental Assessment for Cleanup Proposal –

GZA Engineering completed an October and November 2016 ASTM E1903-11 or equivalent Phase II site assessment report, as well as supplemental investigations including soil and groundwater sampling as well as hazardous building materials sampling. Please refer to the attachment of GZA Engineering's December 2016 ABCA.

- 7) Enforcement or Other Actions – There were no ongoing or anticipated environment enforcement for this site.
- 8) Property Specific Determination – We affirm that this site does not need Property Specific Determination via attachment of the NHDES letter regarding their award of a Brownfields cleanup grant and as confirmed in the attached ABCA.
- 9) Site Eligibility and Property Ownership Eligibility – Hazardous Substance Sites
 - a. CERCLA §107 Liability

We affirm that we are not potentially liable for contamination at the site under CERCLA §107 because we are a “local or state government entity that acquired the property involuntarily through bankruptcy, tax delinquency or abandonment or by exercising its power of eminent domain”.
 - b. Information on Liability and Defenses/Protections
 - i. Information on the Property Acquisition

We acquired the property through the foreclosure of real property taxes on December 19, 2016, from Michael and Kathleen Breton and included the Tax collector’s recorded deed as an attachment. We have not had any familial, contractual, corporate, or financial relationships or affiliations with any prior owner or operator of the site.
 - ii. Timing and/or Contribution Toward Hazardous Substances Disposal

All disposal of hazardous substances at the site occurred before the City acquired the property and we did not cause or contribute to any release of hazardous substances at the site. We have not, at any time, arranged for the disposal of hazardous substances at the site or transported hazardous substances to the site.
 - iii. Pre-Purchase Inquiry

Prior to taking the site the GZA Environmental completed an ASTM E1527-13 Phase I ESA on December 5, 2016, on behalf of the City of Somersworth. Jeffrey Rowell of GZA Environmental performed the Phase I ESA and is an Environmental Professional with over 20 years of experience completing Phase I ESAs.
 - iv. Post-Acquisition Uses

Since we acquired the property the site has remained vacant, and due to the dilapidated nature of the building, we boarded the building up for public safety. However, we have been working with the NHDES’ Brownfields program to perform environmental assessment and cleanup planning activities, and the site building is planned to be demolished shortly after submittal of this grant application.
 - v. Continuing Obligations

Since acquiring the property we have continued to work with the NHDES to assess, continue monitoring, and to plan for cleanup up the site. Excepting known soil and groundwater contamination located beneath the site building, there are no known threats of release on the site. We have limited exposure to

the public by barricading the site, boarding up the building and maintaining the paved areas. During cleanup activities we will:

- i) comply with all land-use restrictions and institutional controls;
- ii) assist and cooperate with those performing the cleanup and provide access to the property;
- iii) comply with all information requests and administrative subpoenas that have or may be issued in connection with the property; and
- iv) provide all legally required notices.

10) Clean up Authority and Oversight –

- a) The City of Somersworth will enroll the property and proposed cleanup work plan in the voluntary response action cleanup program established by the State of New Hampshire. We will competitively procure and engage a qualified environmental professional to manage and oversee the cleanup to ensure that the work is conducted in full compliance with all applicable state and federal laws.
- b) No access from adjacent or neighboring properties is required for cleanup.

11) Community Notification

- a. Draft Analysis of Brownfield Cleanup Alternatives
Where the site has already received a Brownfields RLF subgrant from the NHDES, an ABCA has already been completed.
- b. Community Notification Ad
The community was notified through a newspaper ad on November 2, 2017, postings in City Hall, and through the City's website.
- c. Public Meeting
A public meeting was held in the City Council Chambers on November 8, 2017.
- d. Submission of Community Notification Documents
Copies of the following Community Notification Documents are attached:
 - a copy of the ABCA;
 - a copy of the ad (or equivalent) that demonstrates notification to the public and solicitation for comments on the proposal(s);
 - the comments or a summary of the comments received;
 - your response to the public comments;
 - meeting notes or summary from the public meeting(s); and
 - meeting sign-in sheets.

12) Statutory Cost Share –

- a) The majority of cost share will be in community involvement, grant administration and post remedy performance monitoring.
- b) We are not requesting a hardship waiver.

Site Ownership
Recorded Deed

11-181A

City of Somersworth, NH 03878
One Government Way
603.692.9555

TAX COLLECTOR'S DEED

Doc # 0019001 Dec 19, 2016 12:18 PM
Book 4443 Page 0160 Page 1 of 1
Register of Deeds, Strafford County

Know All Men By These Presents,

That I, Margaret J. Wagner, collector of taxes for the City of Somersworth, in the County of Strafford and the State of New Hampshire, for the year 2016, by the authority in me vested by the laws of the state, and in consideration of value received to me paid by the City of Somersworth, located at One Government Way, do hereby sell and convey to the said City of Somersworth successors / heirs and assigns a certain tract or parcel of land situated in the City of Somersworth, NH, aforesaid, to have and to hold with the appurtenances forever, taxed by the Assessing Officials in 2013 to:

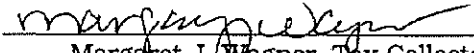
BRETON, MICHAEL + KATHLEEN A

Property located at and described in the Warrant Book as:

1 WINTER ST Map-Lot 11-181A

This deed is the result of the tax lien execution held at the Tax Collector's Office, in the City of Somersworth, New Hampshire on the 14th day of April, 2014 and I hereby covenant with the said City of Somersworth, that in making this conveyance, I have in all things complied with the law, and that I have good right, so far as that right may depend upon the regularity of my own proceedings, to sell and convey the same in the manner foresaid.

In Witness whereof, I have hereunto set my signature and seal, this 7th day of December in the year of our Lord 2016.

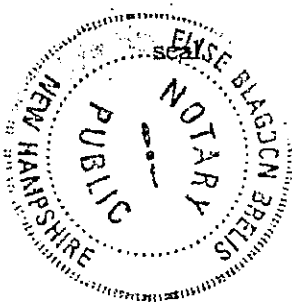

Margaret J. Wagner, Tax Collector

State of New Hampshire, Strafford, ss.

Dec. 7, 2016

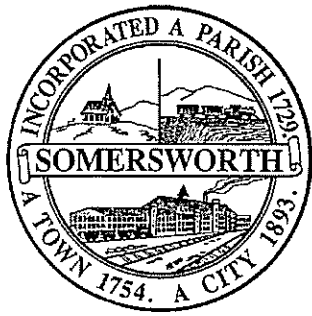
Personally appearing Margaret J. Wagner above named, and acknowledged the foregoing instrument to be her voluntary act and deed.

Before me: Elise Blagden Breh
Notary Public / ~~Justice of the Peace~~



EISE BLAGDEN BREH
Notary Public
State of New Hampshire
My Commission Expires
July 24, 2018

Community Notification



Shanna B. Saunders, Director
Community Development

To: File
Date: November 10, 2017
Re: Community Notification Meeting

Meeting was held November 8, 2017 at 5:00 PM . Sign in sheet is attached.

Comments from the meeting included questions about the site, the proposed demolition of the building, currently being planned this month and what remaining contamination was remaining. There was concern about the River, given the fact it is our drinking water source, but it was explained that the contamination plume is currently monitored and monitoring results show that the plume is not migrating towards the river.

There was no other comments.

Meeting adjourned at 5:42 PM.

SIGN IN PLEASE!


11/8/17

Event Breton's Cleaners Public Hearing

Print name

email

May we
email you for
future events?

- | | | | | |
|-----|---|-----------------------------|---------------------------------------|--|
| 1. | <u>Maia Reynolds</u> | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 2. | <u>Robert Belmore City Manager</u> | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 3. | <u>Shanna B Saunders</u> | | <input checked="" type="checkbox"/> Y | <input type="checkbox"/> N |
| 4. | <u>Tom S. Hilliard Mayor</u> | | <input checked="" type="checkbox"/> Y | <input type="checkbox"/> N |
| 5. | <u>DAVID WITMAN dwitham@nhprince.org</u> | | <input checked="" type="checkbox"/> Y | <input type="checkbox"/> N |
| 6. | <u>Dale Sprague</u> | <u>none</u> | <input type="checkbox"/> Y | <input checked="" type="checkbox"/> N |
| 7. | <u></u> | <u>MDUMONT 57 C POMCAST</u> | | <input checked="" type="checkbox"/> N ^{NRT} |
| 8. | _____ | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 9. | _____ | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 10. | _____ | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 11. | _____ | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 12. | _____ | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 13. | _____ | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 14. | _____ | | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 15. | _____ | | <input type="checkbox"/> Y | <input type="checkbox"/> N |

OBITUARIES/NATION&WORLD

Albert William Johnston

DOVER, N.H. - Albert William Johnston passed away on Friday, Oct. 27, 2017 at the age of 76 after battling cancer. He was born on July 21, 1941 in Pittsburgh, Penn., the son of Albert and Josephine (Franchina) Johnston. He graduated from Central Catholic High School in Pittsburgh, joined the U.S. Air Force after graduation, and then was stationed at Pease Air Force Base for four years.

He worked in Exeter at a hobby and photography shop, and later opened his own shop in Hampton. He then worked as a self-employed contractor for Claims Bureau, Inc. for over 35 years as an insurance fraud investigator. His charm, wit, and ability to think quickly on his feet served him well as a senior investigator.

He was a long time member of First Parish Congregational Church of Dover, where he served on the Board of Wardens, the Stewardship Committee, and as a Deacon.

He enjoyed baseball, basketball and football, and especially loved shooting hoops with his sons-in-law and grandsons, which he continued to do into his seventies. He also enjoyed playing cards and board games, and was an avid eight ball pool shooter.

Following retirement, he and his wife traveled extensively and cherished the friends they met on their many Megatours trips to Atlantic City, Council Bluffs, the Caribbean,



and New Orleans. Al, or Sonny as he was known in Pittsburgh, will always be remembered for his original personality and fun loving spirit, and he will truly be missed by his friends and family. He was predeceased by his sister, Florence Wentling, and an infant son, Albert Jr.

He leaves behind his wife of 32 years, Priscilla of Dover, N.H.; his first wife, Andrea Leahy and husband Bill of Stratham, N.H.; his daughters, Lisa Casey and husband Tony of Smyrna, Maine; Suzette Turnbull and husband Scott of Kittery, Maine; Christina Mossey and husband Adam of Roxford, Mass.; step-son, Derek Dow and husband Roger Welland of Somersworth, N.H.; sisters, Shirley Nardozzi and Marie Martino of Pittsburgh, Penn.; grandchildren, Erica Roy, Phillip Doucette, Christopher Casey, Nick Turnbull, Haley Turnbull and Ella Mossey; great grandson, Lucian Roy; and several nieces and nephews.

SERVICES: A memorial service will be held at First Parish Congregational Church, 218 Central Avenue, Dover, N.H., at 2 p.m. on Saturday, Nov. 11, 2017.

In lieu of flowers, the family suggests that memorial contributions be made to Hyder Family Hospice House, 265 County Farm Road, Dover, NH 03820.

Tasker Funeral Home is in Charge of arrangements. Please go to www.taskerfuneral.com to sign the online guestbook.

Most have little fear of robots taking jobs

By Christopher S. Rugaber
The Associated Press

WASHINGTON — Most Americans believe their jobs, and the jobs of those they live with, are safe from automation — at least for the next decade, according to an Associated Press-NORC Center for Public Affairs Research poll.

And more than half think automation could make their work easier or more efficient in the future.

The findings suggest that while Americans express concern about how automation technology might cause some other people to lose jobs, they are less worried about its effect on themselves.

Fifty-seven percent of respondents said they thought it unlikely that they or someone in their household will be replaced at work by automation within the next 10 years, the survey found. A nearly identical proportion — 50 percent — said they consider it at least somewhat likely that their job will be improved by automation. Many think, for example, that such technology has made jobs safer.

The poll's key findings echo those of other recent surveys. The Pew Research Center found in a survey released this month that 70 percent of Americans believe it unlikely that they will lose their jobs to automation.

Those assessments may well prove accurate, according

to recent analyses that foresee far fewer job losses resulting from automation compared with studies several years ago that had suggested that up to half of U.S. jobs could be replaced over the next two decades.

A report released this month by the education company Pearson, Oxford University and the Nesta Foundation found that just one in five workers are in occupations that will likely shrink by 2030.

Still, the AP-NORC survey found that many Americans worry about the effects of new technologies on their daily lives and the job market. Three-quarters of respondents said they at least somewhat likely that "people will be more isolated from one another."

And most say robots have cost jobs in factories — a view supported by academic research and data showing that factories are now producing more with fewer employees. Three-quarters foresee at least some likelihood that many retail workers will be replaced by automation.

A wide gap also exists in how people with different levels of education respond to such questions. Americans without college degrees are twice as likely as those with degrees to say it's very likely automation will cost them or someone in their household a job.

Doctors prepare for thorough exam of Las Vegas shooter's brain

By Sally Ho
The Associated Press

LAS VEGAS — Scientists are preparing to do a microscopic study of the Las Vegas gunman's brain, but whatever they find, if anything, likely won't be what led him to kill 58 people in the worst mass shooting in modern U.S. history, experts said.

Stephen Paddock's brain is being sent to Stanford University for a month-long examination after a visual inspection during an autopsy found no abnormalities, Las Vegas authorities said.

Doctors will perform multiple forensic analyses, including an exam of the 64-year-old's brain tissue to find any possible neurological problems.

The brain will arrive in California soon, and Stanford has been instructed to spare no expense for the work, The New York Times reported.

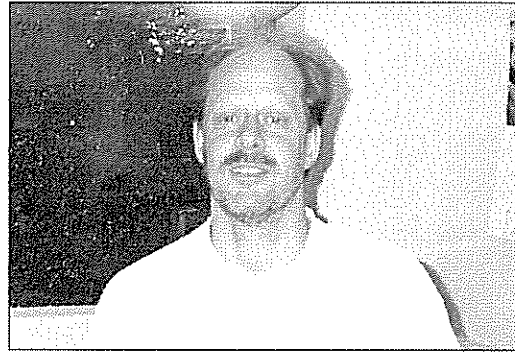
It will be further dissected to determine if Paddock suffered from health problems such as strokes, blood vessel diseases, tumors, some types of epilepsy, multiple sclerosis, degenerative disorders, physical trauma and infections.

Dr. Hannes Vogel, Stanford University Medical Center's director of neuropathology, would not discuss the procedure with The Associated Press and referred questions to officials in Clark County, where Las Vegas is located. They also refused to provide details.

Vogel told The Times that he will have nothing overlooked to put to rest much of the speculation on Paddock's health as investigators struggle to identify a motive for the shooting.

The examination will come about a month after Paddock unleashed more than a thousand bullets through the windows of a 32nd floor suite at the Mandalay Bay casino-hotel into a crowd below attending an outdoor country music festival.

After killing 58 people and wounding hundreds more, Paddock took his



This undated photo provided by Eric Paddock shows his brother, Las Vegas gunman Stephen Paddock. (COURTESY OF ERIC PADDOCK VIA ASSOCIATED PRESS FILE PHOTO)

own life with a shot through his mouth, police say.

Investigators working around the clock remain frustrated by lack of clues that would point to his motive. Authorities have resorted to putting up billboards in southern Nevada seeking tips and now the intensive brain study that medical experts say likely won't yield definitive answers.

If a disease is found, experts say it would be false science to conclude it caused or perhaps even contributed to the massacre, even if that explanation would ease the minds of investigators and the world at large.

"There's a difference between association and causality, and just because you have anything, doesn't mean it does anything," said Brian Peterson, president of the National Association of Medical Examiners and chief coroner of Wisconsin's Milwaukee County.

The microscopic study is not a standard practice but is regularly used as needed. Families sometimes request such a detailed examination to better understand their own genetic risks.

Peterson said it's also common in high-profile cases such as Paddock's, where so much is riding on the results that all forensic

options must be exhausted. Douglas Fields, a neuroscientist who studies the rage circuit in brain systems, said horribly violent events, such as mass shootings and terrorism, rarely involve actual brain abnormalities but can be triggered by psychiatric problems.

Perpetrators often are suicidal psychopaths who are motivated to commit heinous crimes because they have internalized their isolation and anti-social behavior as an existential threat for themselves, he said.

"When police look for motive, it's kind of misplaced in cases like this because they appear to be crimes of rage. There's no motive for crimes of rage. It's a crime of passion," Fields said.

On such a case involved the University of Texas shooter Charles Whitman, who fatally shot 13 people in 1966 from a clock tower on the Austin campus. Whitman was found to have a pecan-sized tumor in his brain, though the suggestion that it caused his rampage is still debated decades later.

Peterson, who is not involved in the Paddock case, said an initial inspection that is standard for any autopsy would generally include dissecting the

brain at one-centimeter intervals to look for issues identifiable to the trained eye — infection, tumor, symmetry, bleeding and blood vessel abnormality.

A further study would involve a microscopic focus on the tissue cells, such as using stains to determine different types of dementia and other degenerative diseases, including chronic traumatic encephalopathy, which is sometimes found in people who have suffered repetitive brain trauma.

There also would likely be a review of the brain at a molecular level through DNA, Peterson said.

Experts say the brain study on Paddock will be a worthy effort for scientific reasons.

Dr. Paul S. Appelbaum, a psychiatry expert at Columbia University, said that at minimum, it might yield something even tangential that can be passed on to the public, such as awareness for psychological disorders or brain diseases.

"Are we ever going to know for certain what caused his brain to do that?" Appelbaum asked. "Probably not from a neuropathological examination, but it's not unreasonable to ask and see whether it might contribute to our understanding of what occurred."

Confusion coming with Calif. legal pot

By Michael R. Blood
The Associated Press

LOS ANGELES — Ready or not, California kicks off recreational marijuana sales on Jan. 1. And, mostly, it's not.

Los Angeles and San Francisco are among many cities still struggling to fashion local rules for pot shops and growers. Without the regulations, there could be limited options in many places for consumers eager to ring in the new year with a legal pot purchase.

"The bulk of folks probably are not going to be ready Jan. 1," conceded Cara Marlinton of the California State

Association of Counties.

In general, California will treat cannabis like alcohol, allowing people 21 and older to legally possess up to an ounce and grow six marijuana plants at home.

Come January, the newly legalized recreational sales will be merged with the state's two-decade-old medical marijuana market, which is also coming under much stronger regulation.

But big gaps loom in the system intended to move cannabis from the field to distribution centers, then to testing labs and eventually retail shops.

The state intends to issue

only temporary licenses starting in January, and it has yet to release its plan for the estimated \$7 billion marketplace, the nation's largest legal pot economy.

If businesses aren't licensed and operating in the legal market, governments aren't collecting their slice of revenue from sales. The state alone estimates it could see as much as \$1 billion lost in within several years.

Operators have complained about what they see as potential conflicts in

various laws and rules, or seemingly contradictory plans.

The state expects businesses that receive licenses will only work with others that hold them. But that has alarmed operators who wonder what will happen if their supplier, for example, decides not to join the new legal market.

Others say it's not clear what could happen in cities that don't enact pot laws, which they warn could open a loophole for businesses to set up shop.

Legal Notice NOTICE OF MEETING

The City of Somersworth will hold a meeting on Wednesday, November 8th, 2017 at 5:00 p.m. in the City Council Chamber at City Hall, One Government Way. There is a public meeting scheduled for the following:

CITY OF SOMERSWORTH'S INTENT TO APPLY FOR A FEDERAL BROWNFIELDS GRANT FOR THE PROPERTY LOCATED AT 1 WINTER STREET.

The City of Somersworth will conduct a public meeting to give citizens the opportunity to comment and have input on the draft grant proposal. This draft proposal will be available at the meeting and a public hearing will be held on the day of the meeting. The grant documents are required to be submitted on or before November 10, 2017.

The draft grant proposal will be available for public review at the City of Somersworth Planning Office at One Government Way, Somersworth, NH and will be available on the City of Somersworth website www.somersworthnh.com.

Citizens are invited to attend the PUBLIC MEETING and to ask questions or otherwise speak on the proposal. The public is invited to attend. Public who are hearing impaired or need other special arrangements, please contact the Planning Office at City Hall 603-858-1511 one week prior to the meeting for assistance. TED Accessible City Hall NH at 711.



GREATER
SOMERSWORTH
Chamber of Commerce

58 High Street • Somersworth, New Hampshire 03878 • Tel: 603-692-7175
www.somersworthchamber.com • info@somersworthchamber.com

October 26, 2017

Shanna B. Saunders
Director of Planning and Community Development
City of Somersworth
One Government Way, Somersworth, NH 03878

Dear Shanna,

On behalf of the Greater Somersworth Chamber of Commerce, please accept this letter of support for the City of Somersworth's application to an EPA Brownfields Clean up grant for the former Breton Cleaner's property.

The Chamber finds that this grant proposes work consistent with the Chamber's goals to provide Somersworth, Rollinsford and the Berwicks with the opportunity to create a healthy economic base and which also results in improved quality of life. The Chamber works in various ways to serve the needs of its members; through provision of business networking opportunities, educational programs and general information that informs the business community. Our goals are realized in part by supporting valuable programs like the *EPA Brownfields Clean up Grant Program*. We further support this project as this clean-up site is in close proximity to the revitalized and renovated commercial Downtown area. The Chamber further supports activities of the City's Sustainability Committee, and we believe supporting the Brownfields Grant furthers our commitment to building a sustainable community for future generations.

As it serves our respective missions, we can assist with the following activities:

- Distribution of project materials and support of clean-up implementation activities
- Serve on advisory boards/ committees that are developed in support of this grant and associated brownfields redevelopment endeavors in our community and Chamber region
- Provide public education materials to the community, Chamber members and commercial business owners to help promote community support for cleanup activities and inform on subsequent redevelopment of the site
- Act as liaison between the Downtown Commercial residents and the City.
- Chamber representation as ongoing advocate of sustainability practices and proponent of brownfields clean-up efforts within the Greater Somersworth Chamber region.

We are pleased to be an active participant and supporter of this valuable community project and will provide assistance to the City of Somersworth as we are able throughout the process. Please contact me with any questions.

Sincerely,

Lindsey Gagnon

Marketing & Events Manager

**DES Waste Management Division
29 Hazen Drive; PO Box 95
Concord, NH 03302-0095**

**ANALYSIS OF BROWNFIELDS CLEANUP
ALTERNATIVES
FORMER BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE
DES SITE #200411112**

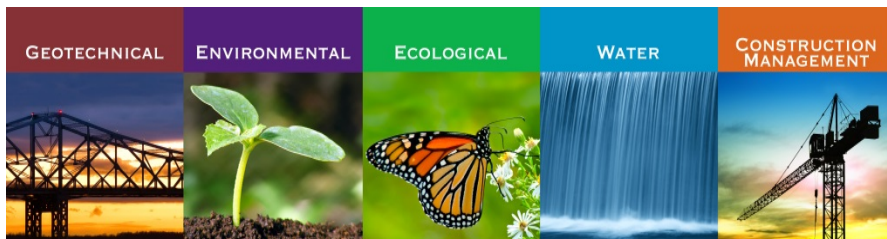
Prepared For:
New Hampshire Department of Environmental Services
PO Box 95, 29 Hazen Drive
Concord, New Hampshire 03302-0095
Mr. Michael McCluskey, P.E.
603-271-2431
michael.mccluskey@des.nh.gov

Prepared By:
GZA GeoEnvironmental, Inc.
5 Commerce Park North,
Suite 201
Bedford, New Hampshire 03110
Phone Number: (603) 232-8763
Contact Name: Ms. Amy Doherty, P.G.
Contact Email: amy.doherty@gza.com
GZA Job No. 04.0190325.10

Date of Report: December 12, 2016



Proactive by Design



ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

Former Breton Cleaners

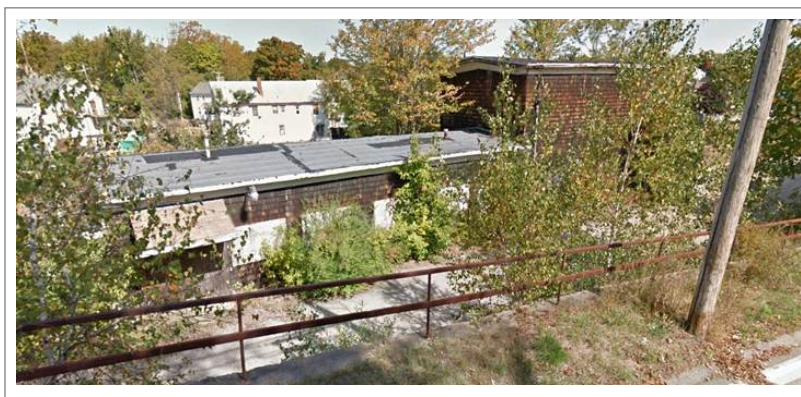
1 Winter Street

Somersworth, New Hampshire

NHDES Site No. 200411112

December 2016

File No. 04.0190325.10



PREPARED FOR:

New Hampshire Department of Environmental Services
Concord, New Hampshire

and

The City of Somersworth, New Hampshire

GZA GeoEnvironmental, Inc.

5 Commerce Park North, Suite 201 | Bedford, NH 03110-6984
603-623-3600

28 Offices Nationwide
www.gza.com

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5 Commerce Park North
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Bedford, NH 03110
T: 603.623.3600
F: 603.624.9463
www.gza.com



December 12, 2016
File No. 04.019325.13

Mr. Michael McCluskey, P.E.
New Hampshire Department of Environmental Services
29 Hazen Drive
Concord, NH 03302-0095

and

Mr. Robert M. Belmore, ICMA-CM
City Manager
City of Somersworth
One Government Way
Somersworth, New Hampshire 03878

Re: Analysis of Brownfields Cleanup Alternatives Report
Former Breton Cleaners
1 Winter Street
Somersworth, New Hampshire
NHDES Site #200411112

Dear Mr. McCluskey and Mr. Belmore:

GZA GeoEnvironmental, Inc. is pleased to submit the attached DRAFT Analysis of Brownfields Cleanup Alternatives (ABCA) Report to the New Hampshire Department of Environmental Services and the City of Somersworth, New Hampshire for targeted remediation and a presumptive remedy at the above-referenced Site. Areas of targeted remediation under this ABCA include: (1) the abatement by demolition of asbestos and lead-based paint (LPB) on the building structures, and LBP in soil where it exists; (2) the removal of containerized hazardous materials and universal waste located within the building; (3) demolition of the Site building; (4) excavation and off-site disposal of tetrachloroethene- (PCE-) contaminated soil; and (5) monitored natural attenuation of PCE-contaminated groundwater.

The United States Environmental Protection Agency Brownfields requirement to prepare an ABCA report is considered equivalent to a Remedial Action Plan (RAP) in New Hampshire under Env-Or 606.12 *Remedial Action Plan Report*; therefore, this review of remedial alternatives will be referred to as a RAP.



We appreciate the opportunity to have worked with you on this project. Should you have any questions, please call the undersigned at (603) 232-8763.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in black ink, reading "Amy T. Doherty". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Amy T. Doherty, P.G.
Senior Project Manager

A handwritten signature in black ink, reading "Jeffrey D. Rowell". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Jeffrey D. Rowell, P.E.
Consultant/Reviewer

A handwritten signature in black ink, reading "Stephen M. Raymond". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Stephen M. Raymond
Principal

ATD/SMR/JDR:tmd

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Attachment: Analysis of Brownfields Cleanup Alternatives Report

cc: Mr. James Bryne, EPA Region 1



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APPENDIX A	LIMITATIONS
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1.0 INTRODUCTION

GZA GeoEnvironmental, Inc (GZA) has prepared this Analysis of Brownfields Cleanup Alternatives (ABCA) on behalf the New Hampshire Department of Environmental Services (NHDES) and the City of Somersworth, New Hampshire (City) for targeted remediation and a presumptive remedy for the former Breton Cleaners property located at 1 Winter Street in Somersworth, New Hampshire (hereafter referred to as “Breton Cleaners” or “Site”). The presumptive remedy under this ABCA includes: (1) the abatement by demolition of asbestos and lead-based paint (LPB) on the building structure, and LBP in soil where it exists; (2) the removal of containerized hazardous materials and universal waste located within the building; (3) demolition of the Site building; (4) excavation and off-site disposal of tetrachloroethylene- (PCE-) contaminated soil; and (5) monitored natural attenuation (MNA) of PCE-contaminated groundwater. The United States Environmental Protection Agency (EPA) Brownfields requirement to prepare an ABCA report is considered equivalent to a Remedial Action Plan (RAP) in New Hampshire under Env-Or 606.12 *Remedial Action Plan Report*; therefore, this summary of the presumptive remedy will also be referred to as a RAP. The City is applying for a \$200,000 Brownfields Cleanup Grant from the EPA to address the remedial actions planned for at the Site. The ABCA is a requirement of the cleanup grant.

The information contained in this ABCA is based on GZA's field observations and results of investigations we have performed at the Site to date and relies on investigation findings and conclusions by others, and presents our opinions regarding the remedial options for the Site. This analysis is subject to modification if GZA or any other party obtains subsequent information. This analysis is subject to the Limitations presented in **Appendix A** of the report.

In compliance with Section 106 of the Historical Preservation Act, a review of the supplemental investigations and probable future building demolition and PCE-contaminated soil excavation and off-site disposal activities relative to historical or archeological resources was conducted by GZA in consultation with the Division of Historic Resources (DHR) within New Hampshire's State Historic Preservation Office. Historic preservation "Review & Compliance" is a consultation process to identify significant historic properties in the planning stage of a project, so that any harm to them can be avoided or minimized. A Request for Project Review was submitted to the DHR by GZA on August 10, 2016. DHR issued a letter response dated August 26 2016 indicating that it was determined that “*No Historic Properties Affected.*” Refer to **Appendix B** for a copy of DHR's response letter.

Authorization to proceed on this project was issued by NHDES in accordance with our proposed Scope of Work and Budget Estimate dated June 24, 2016 and NHDES' Work Scope Approval #1 dated July 8, 2016. The work was performed in general accordance with our *2015-2019 NHDES Contract for Site Investigations, Remediation Design and Implementation Oversight at Petroleum & Hazardous Waste Sites, and CERCLA and Brownfields Projects* approved on August 26, 2015.

1.1 SITE LOCATION

The Site is addressed as 1 Winter Street and is situated just north of the intersection of Winter and Linden streets and just west of the intersection of Winter and Market streets in downtown Somersworth, New Hampshire. An active rail right-of-way (ROW) operated by New Hampshire Northcoast Corporation (NHNC) of Ossipee, New Hampshire abuts the site to the north; the Salmon Falls River is located just north of the rail ROW. Dense residential neighborhoods surround the Site on all other sides. Access to the Site is off Winter Street. A topographic map showing the location of the Site is provided as **Figure 1**.



1.2 SITE AND VICINITY DESCRIPTION

The Site includes an irregular-shaped 0.55-acre parcel of land that is improved with an approximate 3,445-square-foot wood-framed building constructed circa 1850. Historically the building has been identified as having three Sections (Sections A, B, and C; refer to **Appendix C** for figures prepared by others depicting building sections). Information regarding the Site building is provided in the table below.

Feature	Description
<i>Year of Construction</i>	Approximately 1850
<i>Square Footage</i>	3,444 square feet
<i># Stories/Basement</i>	Predominantly single story with the eastern third of the building (Building A) having two stories / partial earthen-floor crawl space (Building A and B)
<i>Foundation Type</i>	Building A and B – Cinder block crawl space foundation; Building C - slab-on-grade
<i>Building Superstructure</i>	Wood-framed
<i>Roof Construction</i>	Gable roof
<i>Roof Covering</i>	Asphalt shingles
<i>Exterior Wall Finishes</i>	Wood shingles
<i>Floor Superstructure</i>	Wood framed (per Assessor's records)
<i>Interior Wall Finishes</i>	Drywall (per Assessor's records)
<i>Floor Coverings</i>	Building A and B - mix of carpet, wood, or vinyl tile. Building C – unfinished
<i>Interior Ceiling Finishes</i>	Building A - acoustical ceiling tile 1 st floor / wood panel second floor; Building B – wall board; Building C - unfinished
<i>Heating/Cooling Systems</i>	The building is not currently heated, but per Assessor's records – natural gas heat with unit heaters and no central cooling. However, GZA notes that within the boiler room of Building C GZA observed a furnace and 275-gallon aboveground storage tank (AST) suggesting a fuel oil-fired heat source. Also, given the age of the building, a historical heat source may have also included coal.
<i>Vertical Conveyances</i>	None noted in Assessor or Fire Department records.
<i>Other Relevant Building Features</i>	None

The following entities provide utilities to the Site:

Service	Provider
<i>Electricity</i>	Eversource available (currently no power to the building interior)
<i>Natural Gas</i>	Unitil available (currently no service)
<i>Drinking Water</i>	City of Somersworth
<i>Sanitary Sewer Services</i>	City of Somersworth
<i>Other Services</i>	NA

The following table lists the properties that adjoin the Site and describes their current use.



Direction	Street Address/Location	Name (as applicable) and Current Use
North	Active railroad right-of-way	Operated by NHNC
South	4 Winter Street and 12 Winter Street	Multi-family residential apartments
East	Market Street at Winter Street	Vacant paved parking area
West	Winter Street	Vacant vegetated land along Salmon Falls River

The Site vicinity is primarily residential to the south and west of the Site across Winter Street. The area to the east and southeast of the Site generally contains commercial properties associated with a downtown commercial/retail district. Commercial and residential development was observed across the Salmon Falls River in the Town of Berwick, Maine.

1.3 SITE HISTORY

The Site building was constructed in approximately 1850 to serve as a railroad freight depot for the Boston and Maine Railroad through the early 1970s. Between the early 1970s and early to mid-1980s, Prime Tanning used the Site for storage of tannery equipment and unloading of hides from rail cars¹. No tanning is known to have occurred at the Site. During this time period, Prime Tanning also reportedly leased the building to a retail hardware business for storage and use of the Site as a coal depot and sales facility. Breton Cleaners began operating a coin-operated and commercial laundry and dry cleaning business at the Site in 1982. Tetrachloroethylene (PCE) was used in the dry cleaning process during that period of time. Dry cleaning operations reportedly ceased in 1990, although other operations may have occurred until 1994. Information suggest that the building has been vacant since operations ceased in the early to mid-1990s.

2.0 SUMMARY OF ENVIRONMENTAL SITE INVESTIGATIONS

2.1 KEY FINDINGS FROM PRIOR 2004-2007 INVESTIGATIONS

As part of a limited subsurface investigation performed by Exeter Environmental Associates (Exeter Environmental)² in May 2004, several test borings and four monitoring wells (two overburden and two bedrock) were installed at the Site. Soil and groundwater samples collected during the investigation indicated the presence of chlorinated volatile organic compounds (cVOCs), namely PCE, in soil and overburden groundwater at concentrations exceeding NHDES standards. The highest groundwater concentration (3,600 micrograms per liter [µg/L]) was detected in monitoring well MW-4 located to the north of the site building (refer to the Site figures from prior investigations included in **Appendix C**). The highest soil concentration (260 milligrams per kilogram [mg/kg]) was detected in a boring performed beneath the site building where the former dry cleaning machinery was located (eastern portion of the site building). Exeter Environmental recommended reporting these findings to NHDES, completing a site investigation meeting the criteria of ENV-WM 1403.07 to assess vertical and lateral extent of contamination, and developing a remedial plan for the Site.

¹ Hazardous Building Material Survey and Subsurface Investigation, Breton Cleaners, 1 Winter Street, Somersworth, New Hampshire, prepared by Nobis Engineering, Inc. dated December 2005.

² "Limited Subsurface Investigation Report, Breton Property, One Winter Street, Somersworth, New Hampshire," prepared by Exeter Environmental Associates, Inc., dated May 17, 2004.



Nobis Engineering, Inc. (Nobis) completed a limited Hazardous Building Materials Survey and Subsurface Investigation³ in December 2005 and a Sub-Slab Soil Gas, Indoor Air, and Groundwater Assessment⁴ in June 2007, and concluded the following:

- Bedrock is overlain by varying thicknesses of glacial till and located approximately 10 feet below ground surface (bgs) at the western end of the Site and greater than 18 feet bgs at the eastern end of the Site. Soil borings at the Site indicate that Site soils are primarily native fill with alluvial deposits and glacial till. Bedrock was observed to be highly fractured and data indicated that there was little vertical gradient between the overburden and bedrock aquifers. Groundwater contours infer a general northerly groundwater flow towards the Salmon Falls River.
- Concentrations of PCE, lead, and arsenic in various soil samples exceeded the applicable Soil Remediation Standards (SRS) included Env-Or 600 – Contaminated Site Management (Env-Or 600). It was concluded that *“the highest concentrations of PCE were detected in shallow (2 feet or less) soil samples beneath the building. The highest concentrations detected for samples collected outside the footprint of the building are in soils collected from deeper strata (8± feet). Nobis concluded that “[t]his is consistent with PCE being released within the footprint of the building and sinking deeper into the soil as it spreads away from the release point. Assuming that soil from the surface to a depth of 8 feet below site grade in the entire area estimated of 655± square feet exceeds NHDES standards, the total volume of contaminated soil would be 5,240± cubic feet or 200± cubic yards. Assuming a soil density of 1.5 tons per cubic yard, the contaminated soil mass is estimated at 300± tons.”*

Lead was detected in one sample in the top 2 inches at a concentration of 680 mg/kg in exceedance of the SRS standard of 400 parts per million (ppm) at one location beneath the floor (P-2, S1, 0-2) that coincided with the highest concentration of PCE in soil. In addition, arsenic was detected in exceedance of the SRS for arsenic (11 mg/kg) in all soil samples submitted for analyses. Arsenic concentrations ranged from 13 mg/kg (MW-5, S2, 2-4) to 42 mg/kg (P-1, S1, 0-2). Nobis concluded that *“while the arsenic concentrations exceed the background standard, it is likely that the arsenic is naturally occurring in local soil and bedrock at elevated concentrations.”*

- Nobis collected soil samples and analyzed them for toxicity characteristic leaching procedure (TCLP) PCE analysis of one sample and concluded that TCLP PCE was found at a concentration of 1.4 milligram per liter (mg/L), exceeding the Table 4.9 Maximum Concentration of Contaminants for the Toxicity Characteristic Regulatory Level⁸ of 0.7 mg/L. Nobis further concluded that *“some of the PCE-containing soil, therefore, is likely a hazardous waste.”*
- PCE was detected in overburden groundwater samples collected from MW-2, MW-4, MW-5, and MW-7, and 1,2-dichloroethylene (1,2-DCE) and trichloroethylene (TCE) were detected in the overburden groundwater samples collected from MW-4 and MW-7 at concentrations exceeding the applicable Ambient Groundwater Quality Standards (AGQS) included in Env-Or 600 in 2005. Groundwater was sampled again during 2007, and it was concluded that *“while concentrations of chlorinated compounds exceed both AGQS and GW-2*

³ “Hazardous Building Material Survey and Subsurface Investigation, Breton Cleaners, 1 Winter Street, Somersworth, New Hampshire,” prepared by Nobis Engineering, Inc., dated December 14, 2005.

⁴ “Sub-Slab Soil Gas, Indoor Air, and Groundwater Assessment Breton Cleaners, 1 Winter Street, Somersworth, New Hampshire,” prepared by Nobis Engineering, Inc., dated June 21, 2007.



standards, the most recent analytical results for groundwater are generally lower than the previous round collected in September 2005.”

- PCE was detected in the overburden groundwater samples collected from MW-4 and MW-5 in excess of the "NHDES Risk Characterization and Management Policy" GW-2 (vapor intrusion threshold) standard of 80 parts per billion. Nobis completed a sub-slab soil gas investigation in 2007 that included sub-slab soil gas probes at nearby residential properties at 9 Linden Street (to the southwest) and 1 Market Street (to the southeast). These probes did not identify PCE or its breakdown products in the soil gas and Nobis therefore concluded that vapors from onsite groundwater contamination had not been identified beneath the two adjoining residential buildings.
- Nobis concluded that *“a downward gradient may not be the prevailing hydrologic condition. The topographic setting and groundwater elevation difference between MW-6 and MW-7 suggest a potential upward vertical gradient in some areas. With no significant downward gradient, transport of the dissolved-phase PCE to the shallow bedrock is also limited. Some infiltration of the PCE to the shallow bedrock aquifer may take place during episodic downward gradient conditions.”*
- Nobis concluded that *“based on the analytical results for groundwater and surface water samples collected for this investigation, it is unlikely that dissolved contaminants originating on the site are currently impacting the Salmon Falls River. Groundwater contaminated in excess of NHDES standards does appear to be migrating off site to the rail ROW adjacent to the site. No drinking water supply wells are known to exist downgradient of the site.”*
- ACMs, LBP, and universal wastes have been identified in the site building that will require management and proper disposal prior to or during demolition.

2.2 2016 SUPPLEMENTAL INVESTIGATIONS

To further evaluate soil and groundwater quality at the Site, GZA completed supplemental investigation activities during October and November 2016 that included installation of groundwater monitoring wells, soil and groundwater sampling and analyses, and supplemental hazardous building material sampling and analyses discussed herein.

The sampling and analyses discussed herein was performed in general accordance with the methodology included in the NHDES- and EPA-approved Site-Specific Quality Assurance Project Plan (QAPP) for the Site, dated August 2016. Any deviations to the QAPP are discussed in the applicable sections below.

2.2.1 Sampling Methodology and Observed Soil / Groundwater Conditions

GZA observed the advancement of test borings drilled by New England Boring Contractors (NEBC) of Londonderry, New Hampshire during October 31, 2016 (refer to **Figure 2**). Originally, three test borings were planned to be completed as monitoring wells including two replacement wells (MW-2X and MW-7X) and one new well (MW-8X); however, NEBC was unsuccessful in reaching the water table prior to encountering refusal at multiple locations at the MW-2X location. A decision was made by GZA with NHDES concurrence to abandon this location and forego the MW-2 replacement well. Due to shallow refusal in all locations, multiple test borings were initiated and subsequently abandoned. GZA notes that no boring logs were completed for these attempts.



Test borings were advanced using auger drilling techniques and a track-mounted ATV drill rig. NEBC coordinated Dig Safe® utility clearance and provided drilling services. GZA personnel monitored the drilling and prepared test boring logs, which are included in **Appendix D**. Soil samples from test borings were collected at 5-foot intervals and screened in the field for total VOCs using a photoionization detector (PID). Samples were visually classified according to the Modified Burmister classification system. As drilled test boring locations were identified using a hand-held global positioning system, and are shown on **Figure 2**.

Subsurface conditions encountered at the five logged test borings during the drilling program included varying densities and amounts of sand with varying amounts of silt and gravel, and shallow refusal on boulders at all locations. GZA observed coal fragments and ash at one location (MW-7X) at a depth of 1.5 feet bgs. Refusal was encountered at depths ranging from approximately 1.5 feet below ground surface (bgs) to approximately 14.8 feet bgs (MW-8).

Total VOCs above background, as measured by a PID, that suggested possible contamination in soil were observed in the following samples:

- At MW-7X in the sample interval collected between 9 feet and 11 feet bgs, total VOCs were detected at a concentration of 31 ppm. This interval was located just above the unstabilized water table observed during drilling (12.5 feet bgs); and
- At MW-8A in the sample collected between 9 feet and 10 feet bgs, total VOCs were detected at a concentration of 130 ppm. GZA observed black staining or apparent black discoloration of the soil in this interval; however, refusal was encountered at 10 feet bgs. Additional attempts were made to drill through the boulder(s) at this location, and eventually the boring was advanced to a depth of 12.5 feet bgs before drilling was terminated based on refusal. No soil was recovered between 10 feet and 12.5 feet bgs.

Based on observations at MW-8A, GZA relocated approximately 5 to 10 feet east of MW-8A and drilled down to a depth just below this interval and collected a soil sample from 14 feet to 14.8 feet before encountering refusal. The purpose of this sample was to evaluate soil quality at a depth below the apparent staining noted in MW-8. No staining was observed during the advancement of MW-8. Detailed descriptions of the materials encountered are provided in the boring logs prepared by GZA and included in **Appendix D**.

A total of three soil samples were submitted to ESS Laboratories of Cranston, Rhode Island (ESS) for analysis of VOCs by EPA Method 8260B. GZA notes that due to an error in the field, a quality assurance / quality control (QA/QC) sample for soil (i.e., duplicate sample) was not collected.

Test borings MW-8 and MW-7X were completed with a 2-inch-diameter polyvinyl chloride groundwater monitoring well. The well screen was designed to span the shallow overburden water table at each location. The monitoring wells were developed by GZA using an inertia pump and surging techniques. During well development at these locations, GZA removed between three to five well volumes of water.

GZA collected a total of five groundwater quality samples from existing wells MW-1, MW-3, and MW-5, and newly installed MW-7X and MW-8 on November 1, 2016 using a peristaltic pump and dedicated polyethylene tubing. GZA notes that a groundwater sample was not able to be obtained from well MW-4 as originally planned based on an apparent obstruction or damage to the well at depth (well bottom measured to be 10.2 feet bgs vs. 13 feet reported on the well construction log, and no water present above 10.2 feet bgs). The sample collection depth



was selected based on the middle of the saturated portion of the screen. Groundwater samples collected were submitted to ESS for analysis of VOCs by EPA Method 8260B⁵.

2.2.2 Soil Quality Data Results

The laboratory analytical report for the three soil samples analyzed is provided in **Appendix E**. Soil data were compared to the Soil Remediation Standards (SRS) included in Env-Or 600. Refer to the summary **Table 1** below that highlights positive detections only. Based on the data results, PCE was detected above laboratory reporting limits in soil at in all three locations, with exceedances of the SRS at two locations (MW-7X and MW-8A). The data results appear to suggest that the area of soil impacted with PCE above the SRS is larger than originally depicted in the 2005 Hazardous Building Material Survey and Subsurface Investigation report prepared by Nobis. An updated illustration of the inferred distribution of PCE contaminated soil is depicted on **Figure 3**. Based on this revised contaminated footprint of approximately 1,040 square feet and assuming an average depth of impacted soil of 8 feet, the area requiring excavation is estimated to be 8,300 cubic feet or 310± cubic yards. Assuming a soil density of 1.5 tons per cubic yard, the contaminated soil mass is estimated at 465± tons. GZA notes that the soil volume is an estimate that may go up or down dependent upon additional sampling to be conducted following building demolition.

Table 1 – Summary of Detected Volatile Organic Compounds in Soil

Sample ID / Location	NHDES Soil Remediation Standards Env-Or 600 SRS		Parameters (mg/kg)						
			PCE	TCE)	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Acetone	Naphthalene	Vinyl Chloride
			2	0.8	2	9	75	5	1
Sample ID / Location	Depth (feet bgs)	Date	VOCs by EPA Method 8260B						
MW-8, S3 [boring ID MW-8]	14-14.8	10/31/2016	0.819	< 0.171	< 0.171	< 0.171	< 0.855	< 0.171	< 0.171
MW-8, S3 (2) [boring ID MW-8A]	9-10	10/31/2016	<u>2.90</u>	0.0452*	<u>4.07</u>	0.0448*	1.114*	0.864	0.109*
MW-7X	9-11	10/31/2016	<u>2.98</u>	< 0.695	1.48	< 0.695	< 3.48	< 0.695	< 0.695

Notes:

- 1) SRS = Soil Remediation Standards included in Env-Or 600 – Contaminated Site Management
- 2) "<" = Analyte not detected above the laboratory reporting limit;
- 3) mg/kg = milligrams per kilogram;
- 4) **Bold/underline** indicates that the concentration exceeds the SRS.
- 5) "*" VOCs analyzed by low level method in addition to standard methanol-preserved 8260B. The higher concentration detected between the two methods is included in the table above to be more conservative.

2.2.3 Groundwater Quality Data Results

The laboratory analytical reports for the five groundwater samples analyzed are provided in **Appendix E**. Groundwater quality data were compared to New Hampshire Ambient Groundwater Quality Standards (AGQS)

⁵ GZA notes that due to an error in the field, a QA/QC sample for soil and groundwater (i.e., duplicate sample) were not collected.



included in Env-Or 600. Refer to the summary **Table 2** below that highlights positive detections of VOCs in groundwater only. GZA notes the following key findings, which are generally consistent with historical data:

- VOCs were not detected above the laboratory quantitation limit in the (bedrock) groundwater sample collected from MW-1.
- PCE was detected in the (bedrock) groundwater sample collected from MW-3 at a concentration not exceeding GW-1 and AGQS standards of 5 µg/L, which is consistent with historical concentrations detected at this location.
- The PCE concentration detected in overburden groundwater at well MW-5 (276 mg/L) was a magnitude-of-order less than what was detected in 2005 (2,300 mg/L), suggesting that natural attenuation mechanisms have been improving overall groundwater quality in this area of the Site over the past decade.
- The PCE concentration detected in overburden groundwater at well MW-7X (157 mg/L) was twice as high as the concentration that was detected in 2005 at well MW-7 (58 mg/L), suggesting a continuing source of PCE contamination beneath the building footprint.
- Based on the PCE detection in overburden groundwater at well MW-8 (11.8 µg/L) the dissolved phase plume historically depicted either as (1) originating from the MW-2 area, or (2) originating from and expanding further west from the MW-5 area encompasses a slightly larger footprint that depicted in 2005.

Table 2 – Summary of Detected Volatile Organic Compounds in Groundwater

NHDES Groundwater Standards		Parameters (µg/L)			
		PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
		AGQS/GW-1 GW-2			
		5 240	5 20	70 NA	100 560
Location	Date	VOCs (8260B)			
MW-1 *bedrock well	4/9/2004	--	--	--	--
	5/5/2004	--	--	--	--
	9/8/2005	< 2	< 2	< 2	--
	11/1/2016	< 1.0	< 1.0	< 1.0	< 1.0
MW-2 (destroyed) *overburden well	4/9/2004	<u>10</u>	--	--	--
	5/5/2004	<u>14</u>	--	--	--
	9/8/2005	<u>16</u>	< 2	< 2	--
MW-3 *bedrock well	4/9/2004	3	--	--	--
	5/5/2004	3	--	--	--
	9/8/2005	2	< 2	< 2	--
	11/1/2016	3.0	< 1.0	< 1.0	< 1.0
MW-4 (damaged) *overburden well	5/5/2004	<u>3,600</u>	<u>80</u>	<u>140</u>	--
	9/8/2005	<u>870</u>	<u>66</u>	<u>100</u>	--
	11/1/2016	*NS - obstruction	*NS- obstruction	*NS- obstruction	*NS- obstruction
MW-5 *overburden well	9/8/2005	<u>1,900</u>	< 10	< 10	--
	9/8/2005 (duplicate)	<u>2,300</u>	< 10	< 10	--
	11/1/2016	<u>276</u>	2.1	< 1.0	< 1.0



NHDES Groundwater Standards		Parameters (µg/L)			
		PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
		AGQS/GW-1 GW-2			
		5 240	5 20	70 NA	100 560
Location	Date	VOCs (8260B)			
MW-6 *bedrock well	9/8/2005	<u>5</u>	< 2	< 2	--
MW-7 (destroyed) *overburden well	9/8/2005	58	10	390	--
MW-7X* overburden well	11/1/2016	157	8.6	48.6	1.3
MW-8 *overburden well	10/31/2016	11.8	< 1.0	< 1.0	< 1.0

Notes:

- 1) AGQS = Ambient Groundwater Quality Standards included in Env-Or 600 – Contaminated Site Management
- 2) NA = No current standard available/not applicable
- 3) NS = Not sampled due to well obstruction
- 4) "--" or "<" = Analyte not detected above the laboratory reporting limit
- 5) µg/L = micrograms per liter
- 6) **Bold/Underline** indicates that the concentration exceeds the AGQS

2.2.4 Supplemental Hazardous Building Materials Testing

GZA collect representative samples of accessible building materials and updated the hazardous material inventory of other containerized hazardous materials and/or universal wastes to supplement the existing information relative to polychlorinated biphenyls (PCBs), asbestos-containing materials (ACMs), lead-based paint (LBP) and other hazardous materials as described below. Please note that based on the poor structural condition of the building, GZA's supplemental sampling / survey work was limited to areas of the Site building deemed safe to enter and sample.

GZA notes that initially the Scope of Work and QAPP included collection of up to 75 samples of suspect ACM. However, based upon the observed deteriorated condition of the building, and the plan to demolish the structure, it was concluded by GZA that no additional asbestos sampling was required at this time. As indicated above, Nobis' 2005 survey of the Site building documented the presence of asbestos in building materials. GZA obtained NHDES concurrence that demolishing the current structure and disposal of non-metal components as bulk asbestos debris is the most acceptable approach for demolishing the building due to the current structural state of the building. The building is currently condemned by the City, and numerous portions of the roof structure were observed to be collapsed and thus unable to be abated in a safe manner. Per GZA's discussion with NHDES, metal debris from the building would be segregated, decontaminated, and transported off site for recycling. The building demolition would need to be conducted by a contractor who's operators have asbestos awareness training and a licensed asbestos abatement contractor would be required to set up exclusion zones, wet debris during demolition and loading, line trucks, and complete any additional ancillary asbestos abatement related tasks during the demolition. All building debris with the exception of metal would be disposed of off-site as asbestos waste at a facility permitted to accept asbestos waste.



2.2.4.1 PCBs

A total of 11 samples were planned to be collected for analysis of PCBs to characterize building materials such as paint, window caulk, glazing, and sealants. The rationale for the sampling was to provide sufficient data to be able to identify areas potentially requiring corrective action and to support the City and NHDES in prioritizing impacted building materials for removal and disposal based on PCB-concentration levels, accessibility, and probable building demolition. Based on the observed building materials and limited access due to the structural concerns relative to safety, a total of four samples and one duplicate sample were collected and submitted to ESS for PCB analysis by EPA method 3540C (manual soxhlet preparation method)/8082.

The laboratory analytical report for the PCB samples analyzed are provided in **Appendix E**. PCB sample results from the building materials were compared to the PCB Cleanup Levels established in 40 CFR 761.61. Refer to the summary **Table 3** below. Based upon the materials observed and accessed, data from the samples collected indicates that PCBs are not present in paint and glazing above the EPA limit of 50 mg/kg for PCB Bulk Product Waste.

Table 3 – Summary of Detected PCB-Containing Material Sample Results

Polychlorinated Biphenyls (PCBs)			Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Total PCBs (mg/kg)
Location	Building Material Description	Date	PCBs (8082A)		
PCB-01	Exterior White Paint on Trim	10/5/2016	0.101	< 0.100	0.101
PCB-01 DUP			< 0.099	< 0.099	< 0.099
PCB-02	Building B Interior Off-White Paint on all walls	10/5/2016	0.226	0.135	0.361
PCB-03	Building B Interior Gray Paint on floor	10/5/2016	0.144	< 0.098	0.144
PCB-04	Building A White Glazing on east wall windows	10/5/2016	< 0.493	< 0.493	< 0.493

Notes:

- 1) PCB Regulatory Criteria are compared to the 40 CFR 761.61 definition of PCB Bulk Product Waste of 50 mg/kg threshold criteria
- 2) "<" = Analyte not detected above the laboratory reporting limit
- 3) "mg/kg" = milligrams per kilogram.

2.2.4.2 Toxicity Characteristic Leaching Procedure Lead Soil Analysis

In the 2005 report, Nobis concluded that LBP was present in painted surfaces of the Site building. GZA collected composite samples of representative materials from anticipated demolition waste streams for TCLP lead laboratory analysis to evaluate whether demolition waste streams will require management following hazardous waste rules.

The laboratory analytical report for the TCLP lead samples analyzed are provided in **Appendix E**. Refer to the summary **Table 4** below that highlights TCLP lead data results. TCLP lead results from building materials were compared to the lead concentration of 5.0 mg/L included on Table 1— Maximum Concentration of Contaminants for the Toxicity Characteristic (29 CFR 261.24).



Based on the TCLP lead data results being less than 5.0 mg/L of lead, GZA concludes that the demolition waste would not be considered a hazardous waste based on the concentrations of lead detected.

Table 4 – Toxicity Characteristic Leaching Procedure in Soil

TCLP RCRA Regulatory Level			TCLP Lead (mg/L)
			5.0
Location	Location of Sample	Date	
TCLP-01	Building A	10/5/2016	0.063
TCLP-02	Building B	10/5/2016	< 0.050
TCLP-02 DUP		10/5/2016	0.055
TCLP-03	Building C	10/5/2016	< 0.050

Notes:

- 1) TCLP = Toxicity Characteristic Leaching Procedure
- 2) RCRA = Resource Conservation Recovery Act
- 3) RCRA Regulatory Level is used to designate soil as a hazardous waste as specified in 40 CFR 261.24
- 4) "<" = Analyte not detected above the laboratory reporting limit
- 5) "mg/L" = milligrams per liter.

2.3 LAWS AND REGULATIONS APPLICABLE TO THE CLEANUP

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, State environmental law, and town by-laws. Federal, State, and local laws regarding procurement of contractors to conduct the cleanup will be followed. In addition, all appropriate local permits (e.g., notify before you dig, rail road right-of-way approvals, soil transport/disposal manifests, demolition permits, etc.) will be obtained prior to the work commencing. **Table 5** below identifies applicable regulations and permits that may be required.

Table 5 – Applicable Regulations and Permits

REGULATION/STATUTE	APPLICABILITY
New Hampshire Env-Or 600 Contaminated Site Management	Remedial Action Plans, Comprehensive Response Actions (Remedial Action Plan), Contaminated Soils Management, & Activity and Use Restrictions
RSA 141-E Asbestos Management and Control, New Hampshire Env-Sw 900 Management of Certain Wastes, and New Hampshire Env-A 1800 Asbestos Management and Control	Requirements for the management of asbestos; steps to identify and address asbestos hazards in structures prior to beginning any work that might disturb asbestos containing materials; licensing and certification for abatement contractors and personnel.
New Hampshire Env-Hw 1100 Requirements For Universal Waste Management	Requirements for the management of certain types of widely generated hazardous waste defined in Env-Hw 104 as "universal wastes"
OSHA Lead Construction Standard 29 CFR 1926.62	Requirements specific to construction work where an employee may be occupationally exposed to lead
EPA Resource Conservation and Recovery Act regulations (40 CFR 260-270)	Requirements specific to hazardous wastes from "cradle-to-grave." Areas of regulation include waste minimization, generation, transportation, treatment, storage, and disposal



3.0 PLANNED FUTURE LAND USE

While the future use of the Site is not yet defined, the City anticipates repurposing the Site as a possible commercial retail / food service property, consistent with its historical use as a commercial property. The current goal of the City is to abate the hazardous building materials, demolish the existing structure, excavate PCE-impacted soil above the SRS to reduce the continuing source of PCE contamination to groundwater, backfill, and complete temporary Site restoration until the redevelopment plan has been finalized.

4.0 TARGETED REMEDIATION AND PRESUMPTIVE REMEDY

Areas of targeted remediation under this ABCA include: (1) the abatement by demolition of asbestos and LPB on the building structures, and LPB in soil where it exists; (2) the removal of containerized hazardous materials and universal waste located within the building; (3) demolition of the Site building; (4) excavation and off-site disposal of PCE-contaminated soil; and (5) MNA of PCE-contaminated groundwater.

The conceptual approach for the remedy includes mitigation of the potential for exposure to identified asbestos, LBP and hazardous materials (i.e., 275-gallon aboveground storage tank) through abatement and removal in accordance with State and federal regulations. The identified hazards that could safely be accessed would either be abated or removed prior to demolition, or abated and removed simultaneously with the building structure demolition. However, based upon the observed deteriorated condition of the building GZA obtained NHDES concurrence with a presumptive remedy that includes demolishing the current structure, removal of foundations, and disposal of non-metal components as bulk asbestos debris is the most acceptable approach for abating ACM and LBP due to the current structural state of the building. The demolition of the building structure would mitigate the safety hazards that the current condition of the Site building presents.

Once the building has been demolished, a presumptive remedy to address residual soil contamination will be implemented. PCE-contaminated soil beneath the footprint of the building will be further characterized, excavated and disposed of off-site. Soil excavation as a presumptive remedy is an approach that has consistently been applied at similar sites, and demonstrated to be effective in cleaning up soil and groundwater contamination. Once PCE contaminated soil has been removed (the continuing source to groundwater contamination), the presumptive remedy to be implemented for addressing residual groundwater contamination is MNA under a NHDES-issued Groundwater Management Permit (GMP). MNA has been a viable option for many groundwater sites, especially as a polishing step toward residual management following mass removal actions, and is a cost-effective means toward attainment of cleanup levels.

In developing the presumptive remedy for hazardous building materials, soil and groundwater at this Site, the following criteria were considered:

- Technical feasibility, constructability, and ease of implementation;
- Short-term and long-term effectiveness and the protection of human health and the environment;
- Reduction in toxicity, mobility, and/or volume;



- Compliance with the SRS;
- Duration or estimated time to reach No Further Action criteria pursuant to the requirements of Env-Or 609.02;
- Cost effectiveness; and
- The potential effects of climate change on the presumptive remedy. GZA has concluded that the effectiveness of the presumptive remedy is not expected to be highly sensitive to potential climate change effects. Relative to soil excavation and off-site disposal, these proposed actions are immediate steps that would presumably take place before any major climatological shift could occur within the region. Relative to natural attenuation of contaminants in Site groundwater, increased drought and flood frequency combined with severity amplification could potentially affect local groundwater flow conditions and geochemistry, but the effect may actually improve the local aquifer's reductive dechlorination capacity (e.g., drought conditions resulting in reduced influx of inhibitive electron acceptors with recharge combined with a lower overall hydraulic gradient).

In GZA's opinion, this presumptive remedy provides the following:

- Abatement and removal of identified asbestos and LBP on and in the building structure, lead in soil beneath the building, and identified hazardous materials/universal waste is considered technically feasible and is considered a cost-effective remedial action to implement. Excavation of PCE-contaminated soil and conducting MNA of impacted groundwater is also considered technically feasible, and is considered a cost-effective remedial action to implement. This remedy eliminates and/or reduces the toxicity, mobility, and volume of asbestos, LBP and hazardous materials/universal waste, and PCE-contaminated soil/groundwater identified at the Site; and
- Adequate protection of human health and the environment through eliminating the risk of exposure to asbestos, LBP, hazardous materials/universal waste in and on the Site building, and PCE-contaminated soil and groundwater is found to be effective in both the short and long term. This remedy also provides for the safety and protection of the public and surrounding properties from risk of potential building failure and collapse should conditions continue to degrade.

The *Estimated Cost Range* to complete this presumptive remedy is **\$380,000** +/- 20% contingency factor ranging being between \$304,600 to \$456,000 with the following breakdown:

- Building demolition and hazardous materials abatement, including engineering, design and project management is estimated to be \$178,000;
- PCE-contaminated soil excavation and off-site disposal as hazardous waste assuming up to 460 tons of soil, engineering, design and project management is estimated to be \$196,000;
- One round of post-remedy evaluation of groundwater quality to ensure the source removal remedy achieved the desired outcome and support the preparation of a GMP application to NHDES [\$6,000]

GZA's opinion, this is a cost-effective strategy and generally includes the following:

- Obtaining all local, State, and federal permits required to facilitate performance of the Work;



- Removal, containerization, and disposal of hazardous materials/universal waste located within the interior and exterior of all Site structure;
- Demolition of the building as bulk asbestos-containing demolition debris;
- Provide perimeter asbestos air monitoring as required during building demolition and loading activities;
- Excavation, characterization, containerization, and disposal of PCE- (and lead where present) impacted soils located beneath the foot print of the building including post-excavation confirmation soil sampling (50);
- Removal of all foundations, footings, and slabs and backfill;
- Restoration of the Site; and
- One round of post-remedy groundwater sampling of up to five monitoring wells for VOCs analyses by EPA Method 8260, and reporting to NHDES.

While we recognize that the following is not considered an eligible expense under the Cleanup Grant, the following additional expenses totaling an estimated **\$93,000** are anticipated to be incurred as part of remedy performance monitoring that the property owner would be responsible for:

- Engineering costs associated with the preparation of a GMP application for submittal to NHDES (\$3,000) and a renewal application after the first five years (\$2,500); and
- Ten years of MNA monitoring (five years biannually [\$11,500 per year] and five years annually [\$6,000 per year]) is estimated to be \$87,500.

4.1 CLEANUP OVERSIGHT RESPONSIBILITY

The cleanup will be overseen by the City and their environmental contractor. In addition, all documents prepared for this Site are submitted to NHDES under the State tracking number for the Site (NHDES ID # 200411112).

4.2 IMPLEMENTATION SCHEDULE

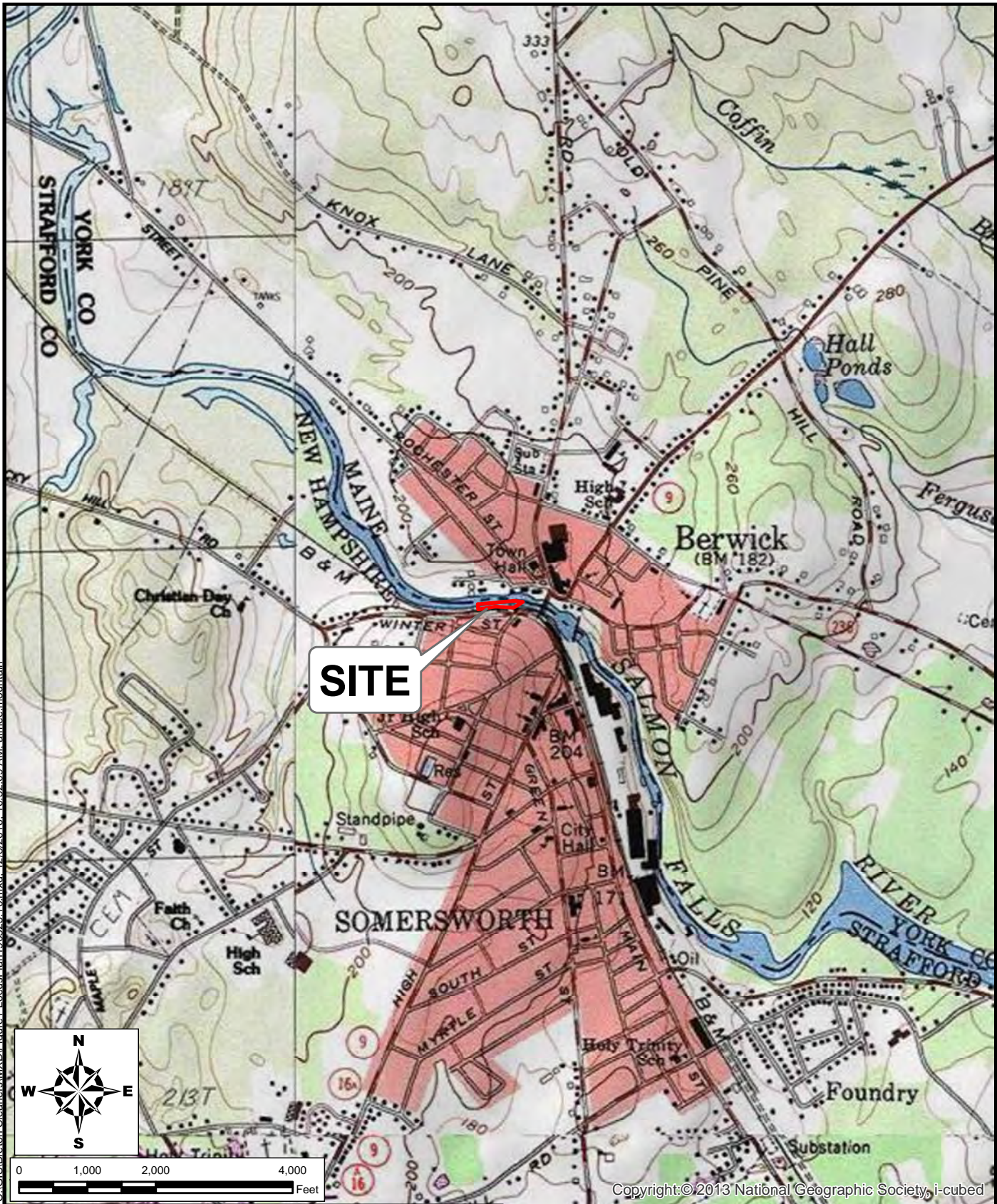
The implementation schedule for the selected remedy will be dependent upon several factors including regulatory approval of the presumptive remedy, public comment regarding the preferred remedy (Env-Or 810.02 Public Participation), procurement of an abatement, demolition, and soil excavation contractor, and the actual phasing and sequencing of the planned abatement and demolition work. The following provides the anticipated schedule for the major components of the project, noting however that it is subject to change based on the factors listed above. In addition, the following schedule is subject to change based on the timing of funding.



TASK DESCRIPTION	APPROXIMATE TASK SCHEDULE
Public Meeting – Presentation of the ABCA followed by a 30-day Public Comment Period	Mid-October 2017
Finalization of ABCA	Mid-November 2017
City Issues Request For Proposal / Bid Walk	End of March 2018 (bid open for two weeks)
Notice of Award	mid-April 2018
Contractor Submittals / Notice to Proceed	end of April 2018
Abatement, Demolition Activities, and soil excavation	May -June 2018
Project Close Out	September – October 2018



Figures



© 2016 - GZA GeoEnvironmental, Inc. C:\GIS\Breton Cleaners\MXD\Figure1-LocusPlan190325.10.mxd, 12/8/2016, 10:32:09 AM, airmee.mountain

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

SOURCE: THIS MAP CONTAINS THE ESRI ARC GIS ONLINE USA TOPO MAPS SERVICE, UPDATED MARCH 1, 2015 BY ESRI/ARCIMS SERVICES AND UPDATED AS NEEDED. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS.

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FORMER BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE

PREPARED BY:
 **GZA GeoEnvironmental, Inc.**
Engineers and Scientists
www.gza.com

PREPARED FOR:
 NEW HAMPSHIRE DEPARTMENT
 OF ENVIRONMENTAL SERVICES

LOCUS PLAN

PROJ MGR:	ATD	REVIEWED BY:	RAB
DESIGNED BY:	KCM	DRAWN BY:	ADM
DATE:	DEC 2016	PROJECT NO.	04.0190325.10

CHECKED BY:	JDR
SCALE:	1 in = 2,000 ft
REVISION NO.	

FIGURE
1

LEGEND



APPROXIMATE PARCEL BOUNDARY

NOTE:

1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.



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SOURCE: THIS MAP CONTAINS THE ESRI ARCGIS ONLINE WORLD IMAGERY MAP SERVICE, UPDATED MARCH 1, 2015 BY ESRI/ARCIMS SERVICES AND UPDATED AS NEEDED. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS.

FORMER BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE

PREPARED BY:
 GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
NEW HAMPSHIRE DEPARTMENT
OF ENVIRONMENTAL SERVICES

SITE PLAN

PROJ MGR:	ATD	REVIEWED BY:	RAB	CHECKED BY:	JDR
DESIGNED BY:	KCM	DRAWN BY:	ADM	SCALE:	1 in = 100 ft
DATE:	DEC 2016	PROJECT NO.	04.0190325.10	REVISION NO.	

FIGURE
2



LEGEND

- MW-1 EXISTING MONITORING WELL COMPLETED BY OTHERS
- MW-8 TEST BORING / MONITORING WELL INSTALLED BY GZA (10/16)
- P-1 PREVIOUS PROBE / BORING COMPLETED BY OTHERS
- 2007 INFERRED EXTENT OF SOIL WITH PCE CONTAMINATION ABOVE NHDES STANDARDS
- 2016 INFERRED EXTENT OF SOIL WITH PCE CONTAMINATION ABOVE NHDES STANDARDS
- APPROXIMATE PARCEL BOUNDARY

SOIL DATA RESULTS

sample location	sample, feet below ground surface
DATE	sample date
cis - 1,2 - DCE	concentration in milligrams/kilogram
TCE	concentration in milligrams/kilogram
PCE	concentration in milligrams/kilogram

CIS - 1,2 DICHLOROTHENE (CIS - 1,2 DCE)
TRICHLOROTHENE (TCE)
TETRACHLOROETHENE (PCE)

- NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.
 2. LOCATIONS FOR EXISTING MONITORING WELLS AND PREVIOUS PROBE / BORINGS ARE BASED OFF A SITE SKETCH FROM NOBIS ENGINEERING, INC. DATED DECEMBER 2005.
 3. THE SOIL REMEDIATION STANDARD (SRS) INCLUDED IN ENV-OR 600 FOR PCE IS 2 MILIGRAMS/KILOGRAM.



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FORMER BRETON CLEANERS 1 WINTER STREET SOMERSWORTH, NEW HAMPSHIRE			
DISTRIBUTION OF PCE IN SOIL			
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES	
PROJ MGR: ATD	REVIEWED BY: RAB	CHECKED BY: JDR	FIGURE 3
DESIGNED BY: KCM	DRAWN BY: ADM	SCALE: 1 in = 25 ft	
DATE: DEC 2016	PROJECT NO. 04.0190325.10	REVISION NO.	

© 2016 - GZA GeoEnvironmental, Inc. C:\GIS\Breton Cleaners\MXD\Figure4-PCE-GWPlan190325.10.mxd, 12/8/2016, 11:30:36 AM, almeida.mountain


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


LEGEND

- MW-1



EXISTING MONITORING WELL COMPLETED BY OTHERS
- MW-8



MONITORING WELL INSTALLED BY GZA (10/16)
- 

APPROXIMATE PARCEL BOUNDARY

GROUNDWATER DATA RESULTS

sample location	overburden or bedrock well
DATE	sample date
PCE	concentration in micrograms/liter

TETRACHLOROETHENE (PCE)

NOTES:


1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.
2. LOCATIONS FOR EXISTING MONITORING WELLS AND PREVIOUS PROBE / BORINGS ARE BASED OFF A SITE SKETCH FROM NOBIS ENGINEERING, INC. DATED DECEMBER 2005.
3. THE AMBIENT GROUNDWATER QUALITY STANDARD (AGQS) INCLUDED IN ENV-OR 600 FOR PCE IS 5 MICROGRAMS/LITER.



UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEORENIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

FORMER BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE

DISTRIBUTION OF PCE IN GROUNDWATER
(NOVEMBER 1, 2016)

PREPARED BY:  GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES	
PROJ MGR: ATD	REVIEWED BY: RAB	CHECKED BY: JDR	FIGURE 4
DESIGNED BY: KCM	DRAWN BY: ADM	SCALE: 1 in = 25 ft	
DATE: DEC 2016	PROJECT NO. 04.0190325.10	REVISION NO.	



Appendix A – Limitations



USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.
4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

SUBSURFACE CONDITIONS

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
6. Water level readings have been made, as described in this Report, in and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the Report.



COMPLIANCE WITH CODES AND REGULATIONS

7. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.

SCREENING AND ANALYTICAL TESTING

8. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.
9. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.
10. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

INTERPRETATION OF DATA

11. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

ADDITIONAL INFORMATION

12. In the event that the Client or others authorized to use this report obtain additional information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

ADDITIONAL SERVICES

13. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction, and/or property development/ redevelopment at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

CONCEPTUAL SITE MODEL

14. Our opinions were developed, in part, based upon a comparison of site data to conditions anticipated within our Conceptual Site Model (CSM). The CSM is based on available information, and professional judgment. There are rarely sufficient data to develop a unique CSM. Therefore observations over time, and/or space, may vary from those depicted in the CSM provided in this report. In addition, the CSM should be evaluated and refined (as appropriate) whenever significant new information and/or data is obtained.

**COST ESTIMATES**

15. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we have no control over either when the work will take place or the labor and material costs required to plan and execute the anticipated work, our cost estimates were made by relying on our experience, the experience of others, and other sources of readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.

RISK CHARACTERIZATION

16. Our risk evaluation was performed in accordance with generally accepted practices of appropriate Federal and/or state regulatory agencies, and of other consultants undertaking similar studies at the same time, for similar purposes, and under similar circumstances. The findings of the risk evaluation are dependent on the numerous assumptions and uncertainties inherent in the risk characterization process. Sources of the uncertainty may include Site conditions; Site use; the nature, extent, concentration and distribution of contaminants; and the available toxicity and/or health/risk based regulatory information. Consequently, the findings of the risk characterization are not an absolute characterization of actual risks; but rather serve to highlight potential incremental risks associated with activities indicated in the Report. Actual risks may be other than indicated in the Report.



Appendix B – DHR’s Response Letter

Please mail the completed form and required material to:

New Hampshire Division of Historical Resources
State Historic Preservation Office
Attention: Review & Compliance
19 Pillsbury Street, Concord, NH 03301-3570

RECEIVED
AUG 11 2016

DHR Use Only	
R&C #	7988
Log In Date	8 / 11 / 16
Response Date	8 / 25 / 16
Sent Date	8 / 26 / 16

Request for Project Review by the New Hampshire Division of Historical Resources

RECEIVED
AUG 30 2016

- ☒ This is a new submittal
☐ This is additional information relating to DHR Review & Compliance (R&C) #:

GENERAL PROJECT INFORMATION

DEPARTMENT OF ENVIRONMENTAL SERVICES
WASTE & MANAGEMENT DIVISION

Project Title *Test Boring, Supplemental Sampling, Potential Remedial action*
Former Breton Cleaners

Project Location 1 Winter Street

City/Town Somersworth Tax Map 11 Lot # 181A

NH State Plane - Feet Geographic Coordinates: Easting 1197557 Northing 279990
(See RPR Instructions and R&C FAQs for guidance.)

Lead Federal Agency and Contact (if applicable) US EPA Region 1 Brownfields / James Bryne
(Agency providing funds, licenses, or permits)
Permit Type and Permit or Job Reference #

State Agency and Contact (if applicable) NHDES Brownfields Program, Hazardous Waste Remediation Bureau /
Michael McCluskey

Permit Type and Permit or Job Reference # NHDES Site ID# 200411112

APPLICANT INFORMATION

Applicant Name NHDES

Mailing Address 29 Hazen Drive PO Box 95 Phone Number (603) 271-2183

City Concord State New Hampshire Zip 03302 Email Michael.McCluskey@des.nh.gov

CONTACT PERSON TO RECEIVE RESPONSE

Name/Company NHDES / Michael McCluskey

Mailing Address 29 Hazen Drive, PO Box 95 Phone Number (603) 271-2183

City Concord State New Hampshire Zip 03302 Email Michael.McCluskey@des.nh.gov

This form is updated periodically. Please download the current form at www.nh.gov/nhdhr/review. Please refer to the Request for Project Review Instructions for direction on completing this form. Submit one copy of this project review form for each project for which review is requested. Include a self-addressed stamped envelope to expedite review response. Project submissions will not be accepted via facsimile or e-mail. This form is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation. For some projects, additional information will be needed to complete the Section 106 review. All items and supporting documentation submitted with a review request, including photographs and publications, will be retained by the DHR as part of its review records. Items to be kept confidential should be clearly identified. For questions regarding the DHR review process and the DHR's role in it, please visit our website at: www.nh.gov/nhdhr/review or contact the R&C Specialist at christina.st.louis@dcr.nh.gov or 603.271.3558.

PROJECTS CANNOT BE PROCESSED WITHOUT THIS INFORMATION

Project Boundaries and Description

- ☒ Attach the relevant portion of a 7.5' USGS Map (photocopied or computer-generated) **indicating the defined project boundary.** (See RPR Instructions and R&C FAQs for guidance.)
- ☒ Attach a detailed narrative description of the proposed project.
- ☒ Attach a site plan. The site plan should include the project boundaries and areas of proposed excavation.
- ☒ Attach photos of the project area (overview of project location and area adjacent to project location, and specific areas of proposed impacts and disturbances.) (Informative photo captions are requested.)
- ☒ A DHR file review must be conducted to identify properties within or adjacent to the project area. Provide file review results in **Table 1.** (Blank table forms are available on the DHR website.)
File review conducted on 08/04/2016.

Architecture

Are there any buildings, structures (bridges, walls, culverts, etc.) objects, districts or landscapes within the project area? ☒ Yes ☐ No

If no, skip to Archaeology section. If yes, submit all of the following information:

Approximate age(s): circa 1850s

- ☒ Photographs of **each** resource or streetscape located within the project area, with captions, along with a mapped photo key. (Digital photographs are accepted. All photographs must be clear, crisp and focused.)
- ☒ If the project involves rehabilitation, demolition, additions, or alterations to existing buildings or structures, provide additional photographs showing detailed project work locations. (i.e. Detail photo of windows if window replacement is proposed.)

Archaeology

Does the proposed undertaking involve ground-disturbing activity? ☒ Yes ☐ No

If yes, submit all of the following information:

- ☒ Description of current and previous land use and disturbances.
- ☐ Available information concerning known or suspected archaeological resources within the project area (such as cellar holes, wells, foundations, dams, etc.)

Please note that for many projects an architectural and/or archaeological survey or other additional information may be needed to complete the Section 106 process.

DHR Comment/Finding Recommendation *This Space for Division of Historical Resources Use Only*

- ☐ Insufficient information to initiate review. ☐ Additional information is needed in order to complete review.
- ☐ No Potential to cause Effects ☒ No Historic Properties Affected ☐ No Adverse Effect ☐ Adverse Effect

Comments:

Thank you for submitting a thorough RPR form with sufficient information for the HRC to assist in decision making.

If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.

Authorized Signature:

Richard Bosworth DSH/PO

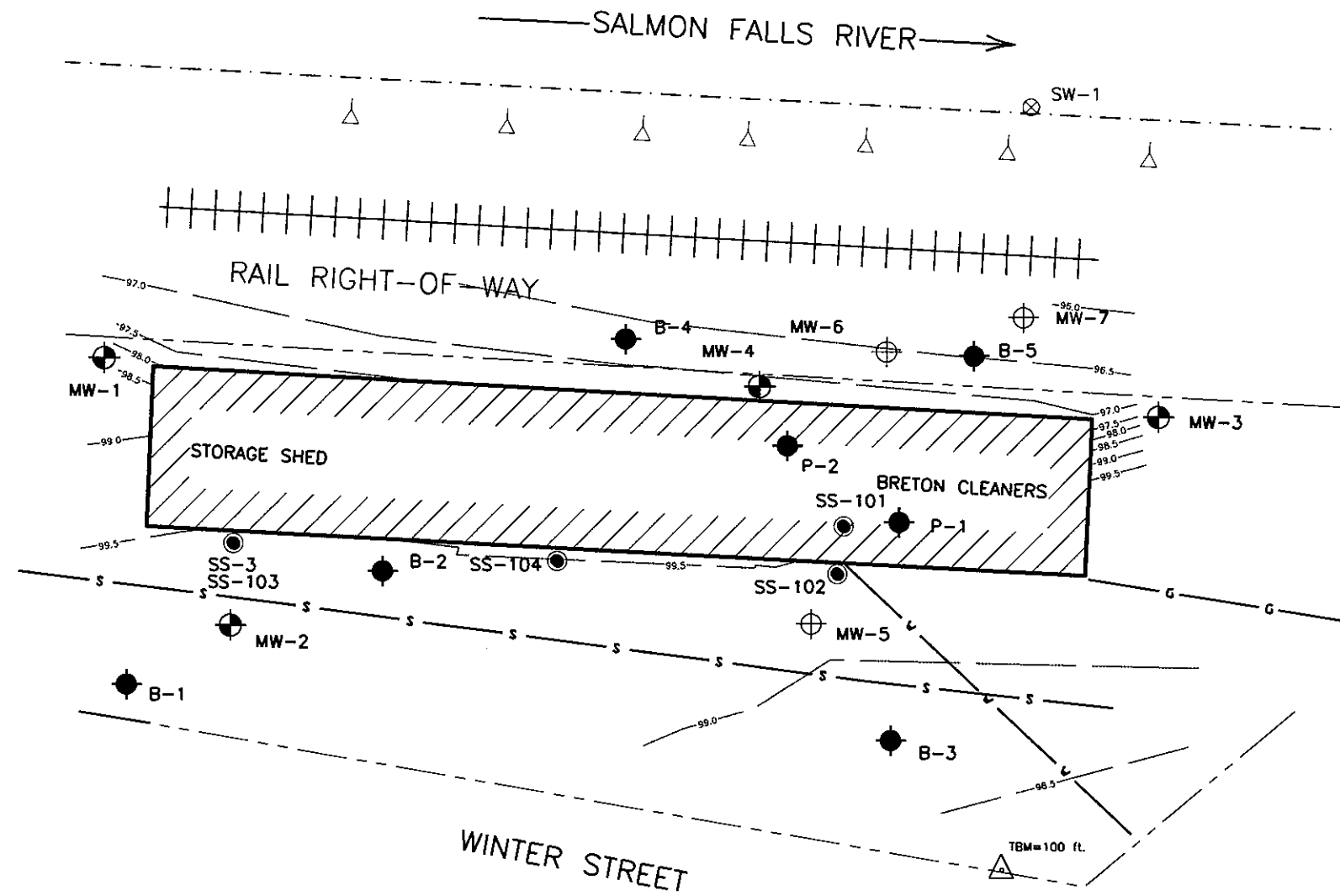
Date:

8-25-16



Appendix C – Historical Documentation

J:\75720.00 NHDPS Brownfields\75720.03 Breton Cleaners\Breton Cadd\dwg\75720.03_SitePlan.dwg



NOTES

1. THIS SITE SKETCH WAS DEVELOPED FROM A SITE PLAN PREPARED BY EXETER ENVIRONMENTAL ASSOCIATES, INC. AND MEASUREMENTS AND OBSERVATIONS BY NOBIS ENGINEERING, INC.

2. LOCATIONS AND SITE FEATURES DEPICTED HEREON ARE APPROXIMATE AND GIVEN FOR ILLUSTRATIVE PURPOSES ONLY.

LEGEND

- SITE BOUNDARY
- [Hatched Box] EXISTING BUILDING
- [Circle with Cross] EXISTING MONITORING WELL
MW-1 COMPLETED PREVIOUSLY BY OTHERS
- [Circle] PREVIOUS BORING
COMPLETED BY OTHERS
- [Circle with Cross] NEW MONITORING WELL
- [Circle with Dot] NEW PROBE / BORING
- s --- MUNICIPAL SEWER
- w --- MUNICIPAL WATER
- G --- BURIED GAS LINE
- 99.0 --- TOPOGRAPHIC CONTOUR
- [Triangle with Dot] TEMPORARY BENCH MARK (TBM)
- [Triangle] STEEP SLOPE

GRAPHIC SCALE



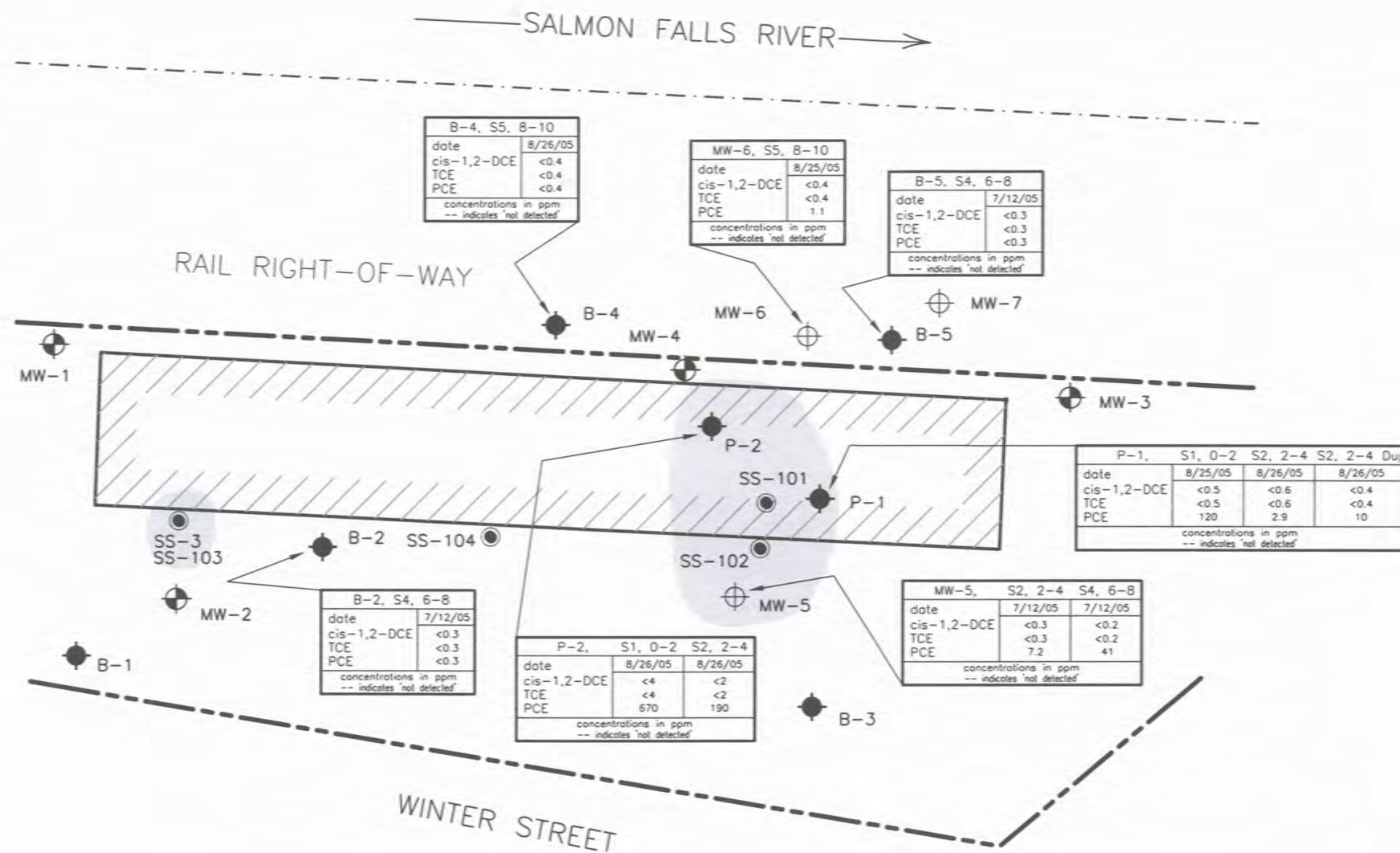
Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301
Tel (603) 224-4182
Fax (603) 224-2507
www.nobisengineering.com

FIGURE 2

SITE SKETCH
BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE

DRAWN BY: SB	APPROVED BY: SH
PROJECT: 75720.03	DECEMBER 2005

J:\75720.00 NHD\ES Brownfields\75720.03 Breton Cleaners\Breton_Codd\dwg\75720.03_SitePlan.dwg



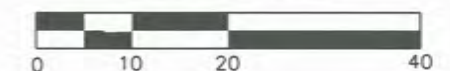
NOTES

1. THIS SITE SKETCH WAS DEVELOPED FROM A SITE PLAN PREPARED BY EXETER ENVIRONMENTAL ASSOCIATES, INC. AND MEASUREMENTS AND OBSERVATIONS BY NOBIS ENGINEERING, INC.
2. LOCATIONS AND SITE FEATURES DEPICTED HEREON ARE APPROXIMATE AND GIVEN FOR ILLUSTRATIVE PURPOSES ONLY. REFER TO FIGURE 2 FOR ADDITIONAL SITE DETAILS.
3. THE HORIZONTAL EXTENT OF SOIL CONTAMINATION IS INFERRED BASED ON ANALYTICAL DATA FOR PCE CONCENTRATIONS IN SAMPLES COLLECTED IN APRIL 2004 AND JULY AND AUGUST 2005; OTHER INTERPRETATIONS ARE POSSIBLE.

LEGEND

- SITE BOUNDARY
- EXISTING BUILDING
- EXISTING MONITORING WELL COMPLETED PREVIOUSLY BY OTHERS
- PREVIOUS BORING COMPLETED BY OTHERS
- NEW MONITORING WELL
- NEW PROBE / BORING
- S — MUNICIPAL SEWER
- W — MUNICIPAL WATER
- G — BURIED GAS LINE
- TOPOGRAPHIC CONTOUR
- INFERRED EXTENT OF SOIL WITH PCE CONTAMINATION ABOVE NHDES STANDARDS

GRAPHIC SCALE

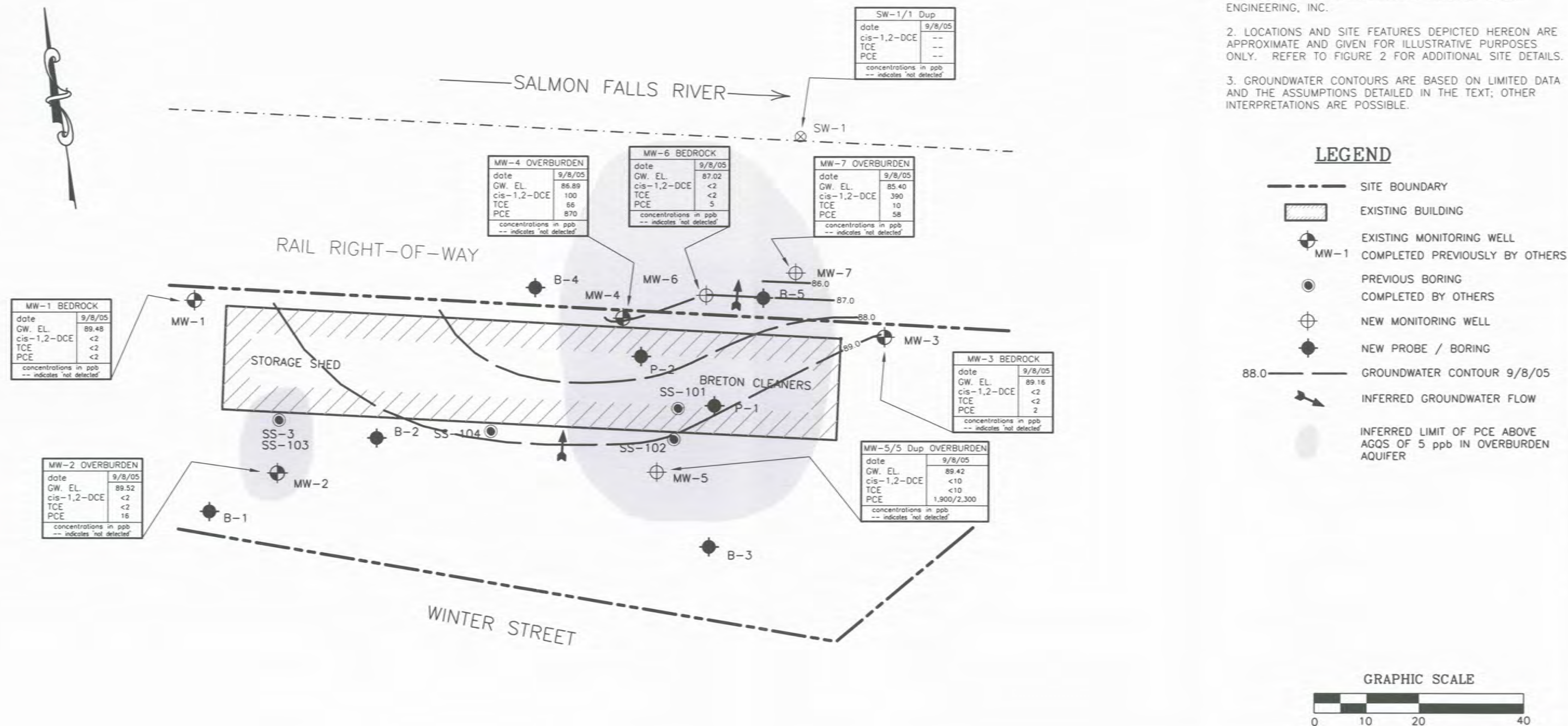


Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301
Tel (603) 224-4182
Fax (603) 224-2507
www.nobisengineering.com

FIGURE 3

SOIL CONTAMINANT DISTRIBUTION
BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE

DRAWN BY: SB	APPROVED BY: SH
PROJECT: 75720.03	DECEMBER 2005

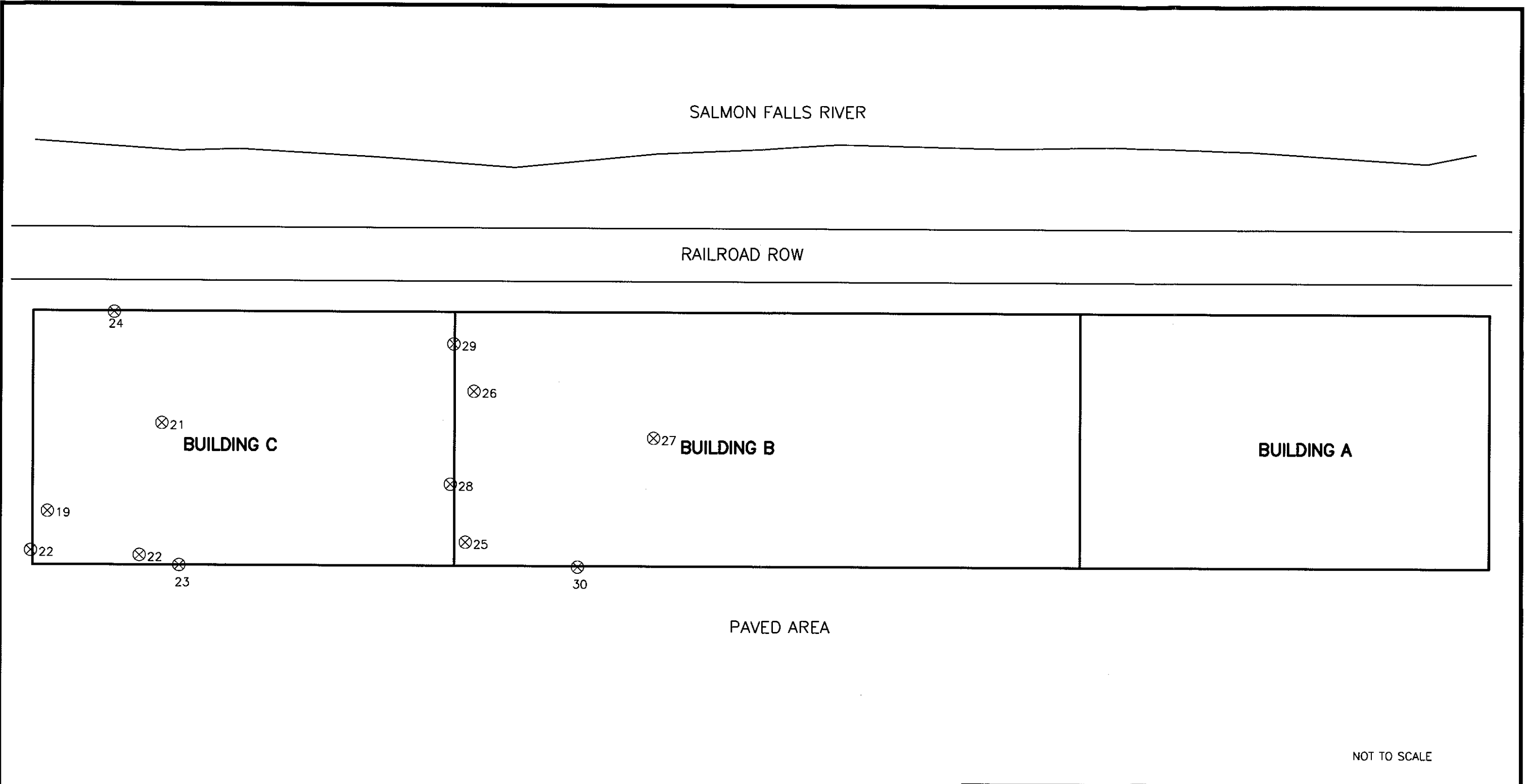


Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301
Tel (603) 224-4182
Fax (603) 224-2507
www.nobisengineering.com

FIGURE 4
GROUNDWATER CONTOURS AND
CONTAMINANT DISTRIBUTION
BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE

DRAWN BY: SB	APPROVED BY: SH
PROJECT: 75720.03	DECEMBER 2005


J:\75720.00 NHDES Brownfields\75720.03 Breton Cleaners\Breton Cadd\dwg\75720.03_Sketch.dwg



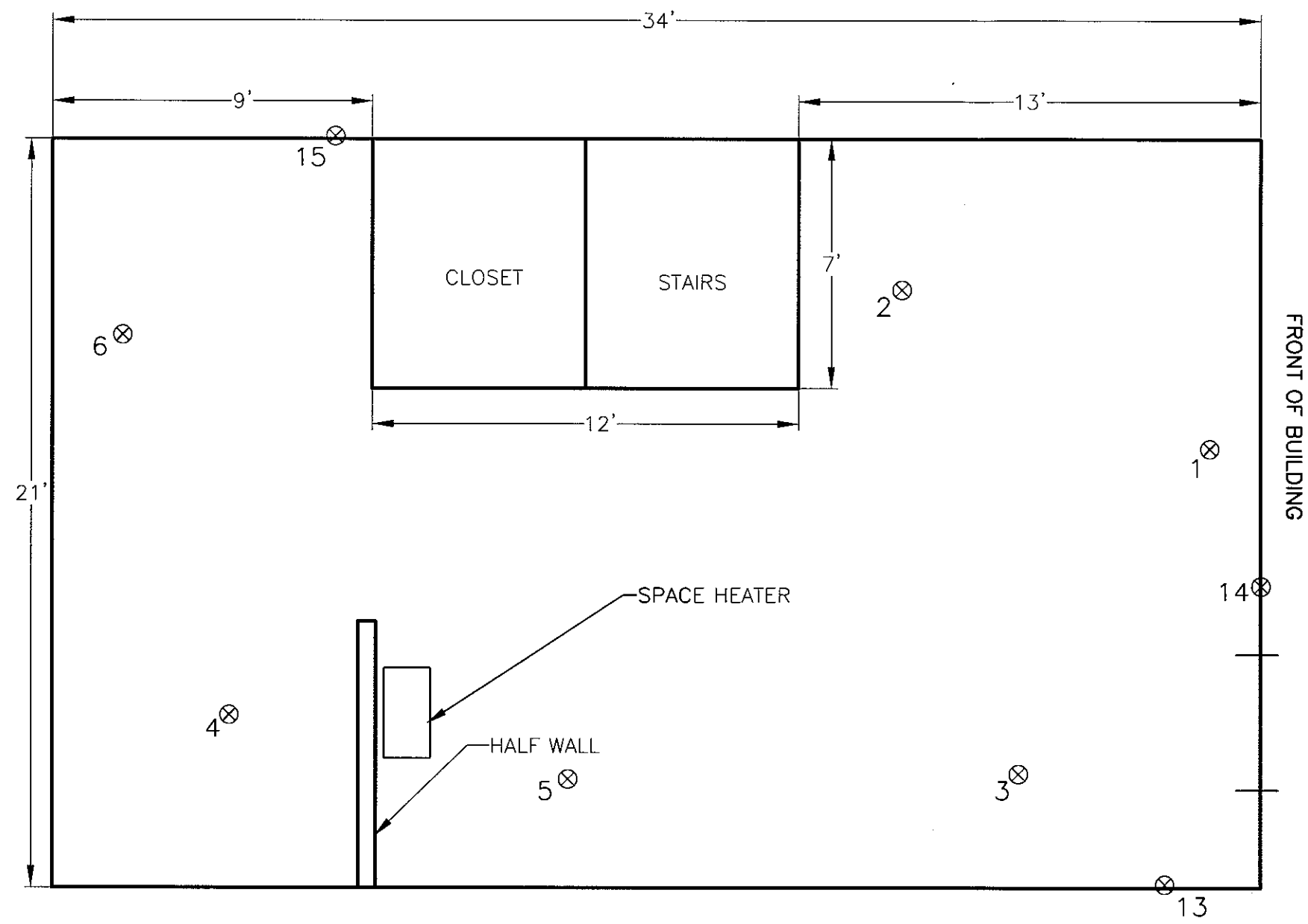
NOT TO SCALE

LEGEND:
1 X ROOF SAMPLE LOCATION

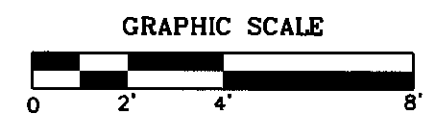
BUILDING/ROOF

 Nobis Engineering, Inc. 18 Chenell Drive Concord, NH 03301 Tel (603) 224-4182 Fax (603) 224-2507 www.nobisengineering.com		FIGURE 5	
		BUILDING/ROOF PLAN BRETON CLEANERS 1 WINTER STREET SOMERSWORTH, NEW HAMPSHIRE	
DRAWN BY: AS		APPROVED BY: KRA	
PROJECT: 75720.03		DECEMBER 2005	


J:\75720.00 NHDES Brownfields\75720.03 Breton Cleaners\Breton Codd\dwg\75720.03_Sketch.dwg



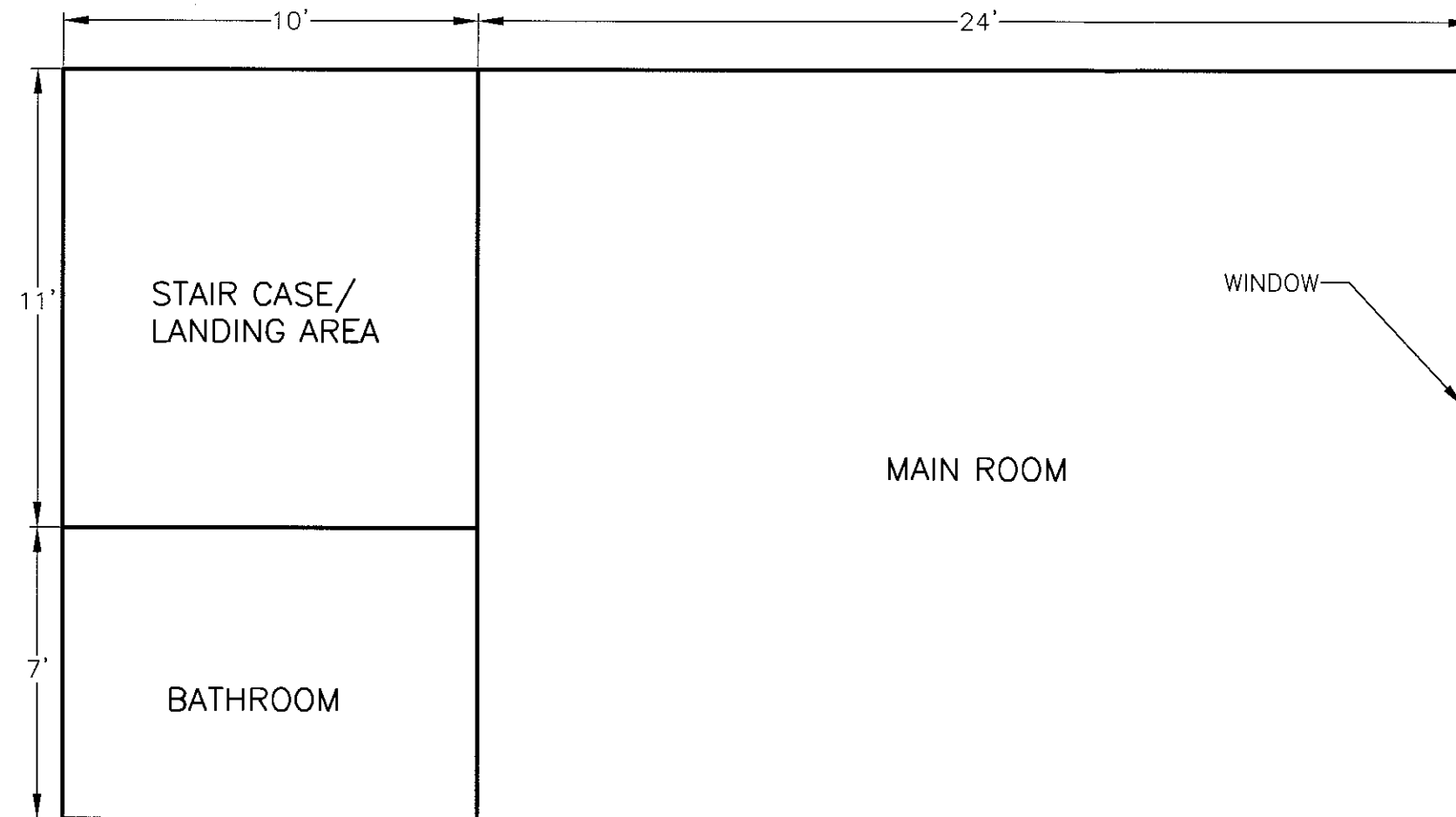
LEGEND:
1 ⊗ SAMPLE LOCATION



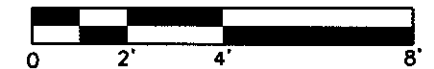
BUILDING A – FIRST FLOOR

 Nobis Engineering, Inc. 18 Chenell Drive Concord, NH 03301 Tel (603) 224-4182 Fax (603) 224-2507 www.nobisengineering.com		FIGURE 6	
		BUILDING A FLOOR PLAN BRETON CLEANERS 1 WINTER STREET SOMERSWORTH, NEW HAMPSHIRE	
DRAWN BY: AS		APPROVED BY: KRA	
PROJECT: 75720.03		DECEMBER 2005	

J:\75720.00 NHDES Brownfields\75720.03 Breton Cleaners\Breton Cadd\dwg\75720.03_Sketch.dwg



GRAPHIC SCALE



BUILDING A SECOND FLOOR



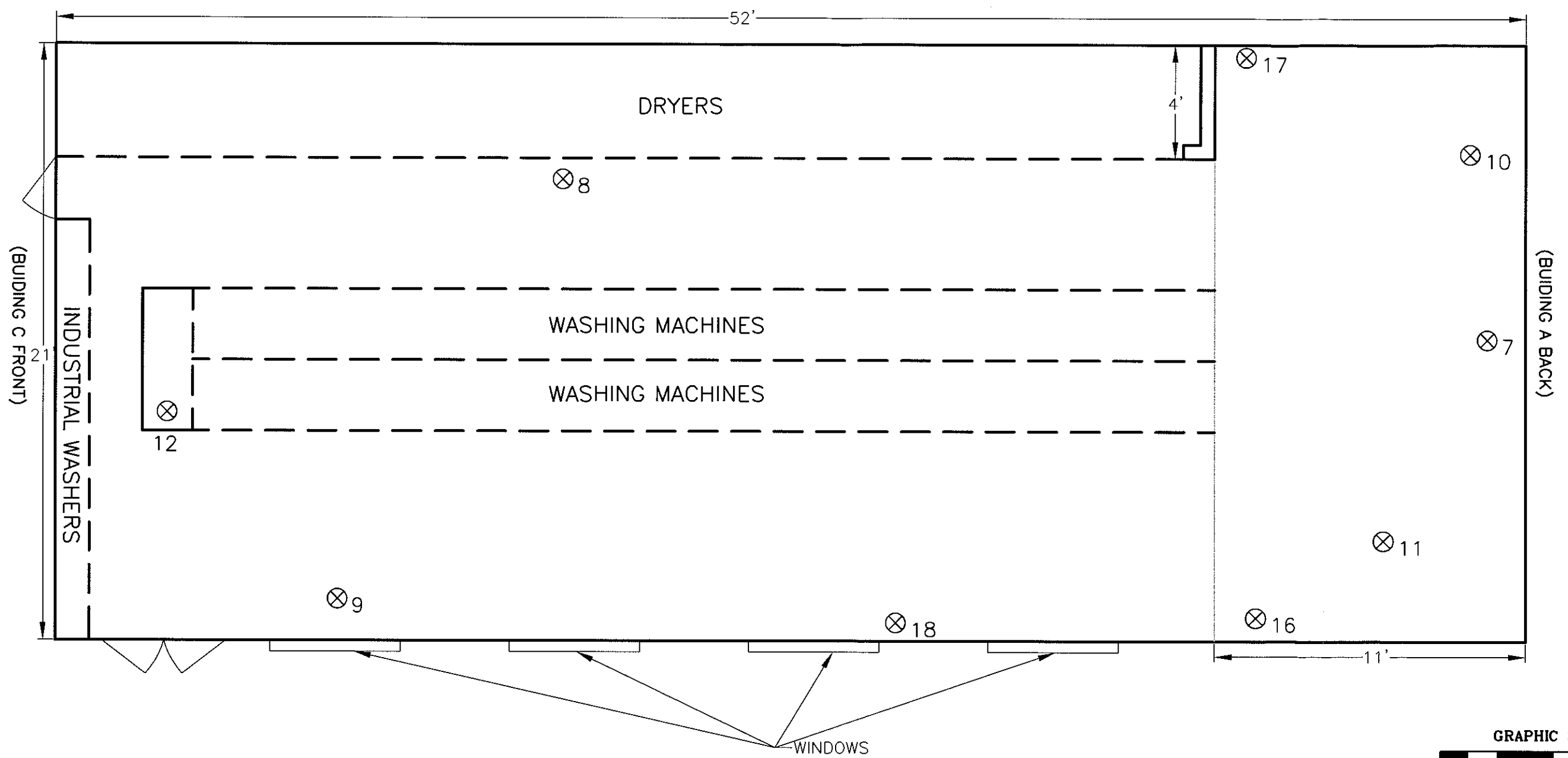
Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301
Tel (603) 224-4182
Fax (603) 224-2507
www.nobisengineering.com

FIGURE 7

**BUILDING A SECOND STORY
FLOOR PLAN
BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE**

DRAWN BY: AS	APPROVED BY: KRA
PROJECT: 75720.03	DECEMBER 2005


J:\75720.00 NHDES Brownfields\75720.03 Breton Cleaners\Breton Cadd\dwg\75720.03_Sketch.dwg



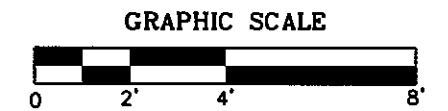
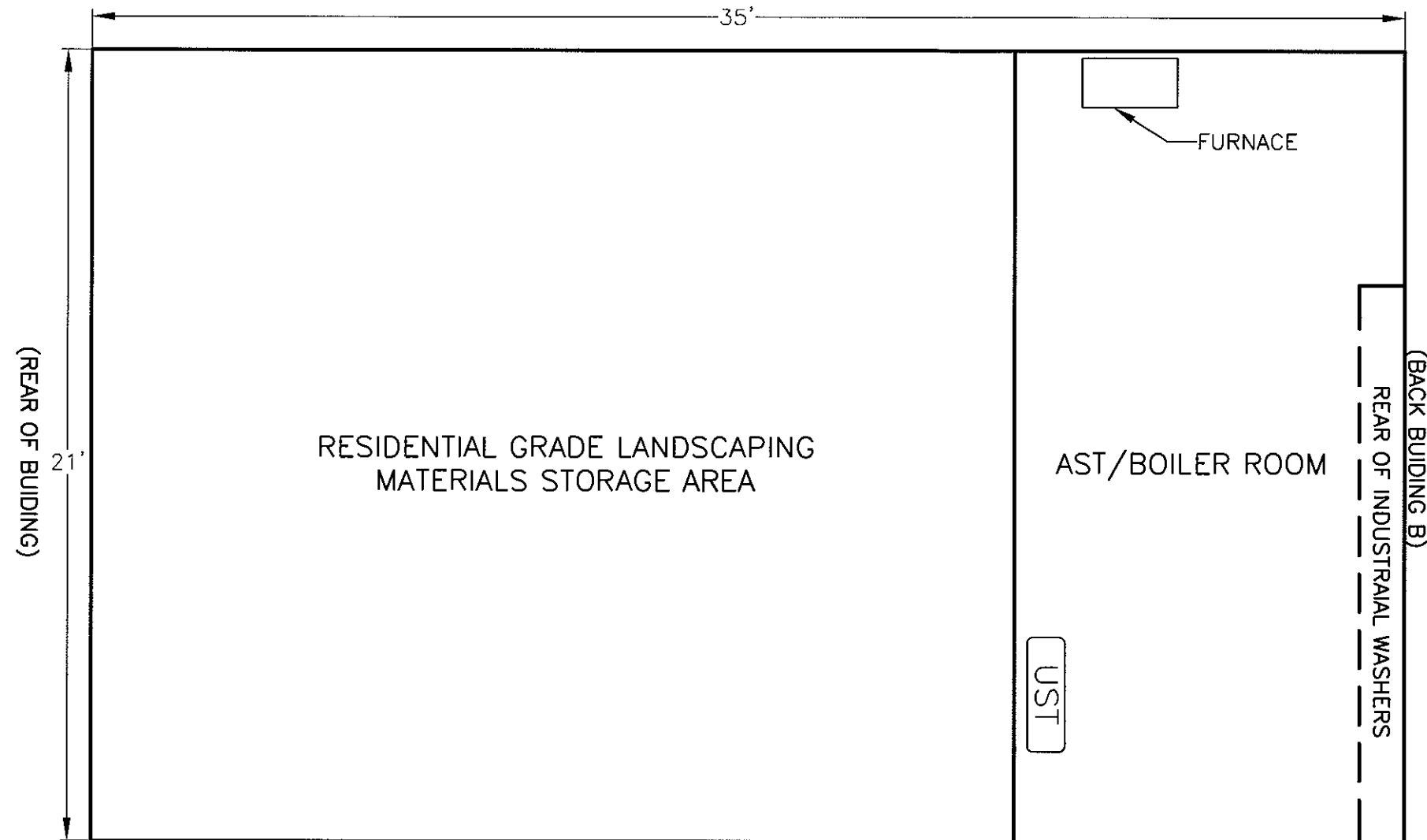
LEGEND:

- 1 ⊗ SAMPLE LOCATION

BUILDING B

 Nobis Engineering, Inc. 18 Chenell Drive Concord, NH 03301 Tel (603) 224-4182 Fax (603) 224-2507 www.nobisengineering.com		FIGURE 8	
		BUILDING B FLOOR PLAN BRETON CLEANERS 1 WINTER STREET SOMERSWORTH, NEW HAMPSHIRE	
DRAWN BY: AS		APPROVED BY: KRA	
PROJECT: 75720.03		DECEMBER 2005	

J:\75720.00 NHDES Brownfields\75720.03 Breton Cleaners\Breton Cadd\dwg\75720.03_Sketch.dwg



BUILDING C



Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301
Tel (603) 224-4182
Fax (603) 224-2507
www.nobisengineering.com

FIGURE 9

BUILDING C FLOOR PLAN
BRETON CLEANERS
1 WINTER STREET
SOMERSWORTH, NEW HAMPSHIRE

DRAWN BY:	AS	APPROVED BY:	KRA
PROJECT:	75720.03		DECEMBER 2005



Appendix D – Test Boring Log / Monitoring Well Construction Logs

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

NHDES
Breton Cleaners
Somersworth, New Hampshire
1 Winter Street

EXPLORATION NO.: MW-2X
SHEET: 1 of 1
PROJECT NO: 04.0190325.10
REVIEWED BY: A. Doherty

Logged By: M. Murphy
Drilling Co.: New England Boring Contractors
Foreman: M. Soucy

Type of Rig: Remote Rig
Rig Model: Diedrich D-50
Drilling Method: HSA

Boring Location: See Plan
Ground Surface Elev. (ft.): NA
Final Boring Depth (ft.): 7
Date Start - Finish: 10/31/2016 - 10/31/2016

H. Datum:
V. Datum: NAD 83

Hammer Type: Cat Head
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.00

Sampler Type:
Sampler O.D. (in.):
Sampler Length (in.):
Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
Not Encountered				

Depth (ft)	Casing Blows/ Core Rate	No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft.)	Stratum Description Elev. (ft.)	Equipment Installed
5		S-1	4.0-6.0	24	15	3 2 3 2	5	S-1: Loose, light brown, fine to coarse SAND, trace Gravel, little Silt, dry.	1	PID = 1	7	SAND	No Equipment Installed
10								End of exploration at 7 feet.	2 3				
15													
20													
25													
30													

REMARKS
1 - Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2 - Auger refusal at 7 feet.
3 - Driller made several attempts to install a well at this location; however, all attempts encountered refusal at depths less than 7 feet below ground surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: MW-2X

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

NHDES
Breton Cleaners
Somersworth, New Hampshire
1 Winter Street

EXPLORATION NO.: MW-7X
SHEET: 1 of 1
PROJECT NO: 04.0190325.10
REVIEWED BY: A. Doherty

Logged By: M. Murphy
Drilling Co.: New England Boring Contractors
Foreman: M. Soucy

Type of Rig: Remote Rig
Rig Model: Diedrich D-50
Drilling Method: HSA

Boring Location: See Plan
Ground Surface Elev. (ft.): NA
Final Boring Depth (ft.): 16
Date Start - Finish: 10/31/2016 - 10/31/2016

H. Datum:
V. Datum: NAD 83

Hammer Type: Cat Head
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.00

Sampler Type:
Sampler O.D. (in.):
Sampler Length (in.):
Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
10/31/2016	03:36 PM		12.50	10.00

Depth (ft)	Casing Blows/ Core Rate	No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Description	Equipment Installed
5									1			3" Stand pipe
10		S-1	9.0-11.0	24	10	5 33 5 5	38	S-1: Dense, dark brown and brown, fine to medium SAND, little Silt, trace Gravel, trace Clay, moist.	2	PID = 31	SAND	Cement 0.5' Backfill 1.96' Bentonite seal 2.5' 4" 2" ID Solid Sch 40 PVC Well Riser 6' Filter Sand 2" ID Slotted Sch 40 PVC Well Screen (0.01" Slot)
15								End of exploration at 16 feet.				16'
20												
25												
30												

REMARKS

- 1 - Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- 2 - Soil sample collected for laboratory analysis.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
MW-7X

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

NHDES
Breton Cleaners
Somersworth, New Hampshire
1 Winter Street

EXPLORATION NO.: MW-7XA
SHEET: 1 of 1
PROJECT NO: 04.0190325.10
REVIEWED BY: A. Doherty

Logged By: M. Murphy
Drilling Co.: New England Boring Contractors
Foreman: M. Soucy

Type of Rig: Remote Rig
Rig Model: Diedrich D-50
Drilling Method: HSA

Boring Location: See Plan
Ground Surface Elev. (ft.): NA
Final Boring Depth (ft.): 13.5
Date Start - Finish: 10/31/2016 - 10/31/2016

H. Datum:
V. Datum: NAD 83

Hammer Type: Cat Head
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.00

Sampler Type:
Sampler O.D. (in.):
Sampler Length (in.):
Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
10/31/2016	01:44 PM		12.50	10.00

Depth (ft)	Casing Blows/ Core Rate	No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft.)	Stratum Description Elev. (ft.)	Equipment Installed
5		S-1	0.0-2.0	24	14	3 7 9 10	16	S-1: Medium dense, dark brown to brown, fine to coarse SAND, little Gravel, little Silt, dry, Coal fragments and ash at 1.5' bgs.	1	PID = 2.5			No Equipment Installed
		S-2	4.0-6.0	24	7	6 5 8 18	13	S-2: Medium dense, light brown, fine to coarse SAND, little Gravel, little Silt, trace Clay, moist.		PID = 1		SAND	
10		S-3	9.0-11.0	24	13	3 5 4 5	9	S-3: Loose, dark brown to brown, fine to coarse SAND, little Gravel, little Silt, trace Clay, moist.		PID = 1			
15								End of exploration at 13.5 feet.	2		13.5		
20													
25													
30													

REMARKS

1 - Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2 - Auger refusal at 13.5 feet.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
MW-7XA

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

NHDES
Breton Cleaners
Somersworth, New Hampshire
1 Winter Street

EXPLORATION NO.: MW-8
SHEET: 1 of 1
PROJECT NO: 04.0190325.10
REVIEWED BY: A. Doherty

Logged By: M. Murphy
Drilling Co.: New England Boring Contractors
Foreman: M. Soucy

Type of Rig: Remote Rig
Rig Model: Diedrich D-50
Drilling Method: HSA

Boring Location: See Plan
Ground Surface Elev. (ft.): NA
Final Boring Depth (ft.): 14.8
Date Start - Finish: 10/31/2016 - 10/31/2016

H. Datum:
V. Datum: NAD 83

Hammer Type: Cat Head
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.00

Sampler Type:
Sampler O.D. (in.):
Sampler Length (in.):
Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
10/31/2016	12:08 PM		8.50	

Depth (ft)	Casing Blows/ Core Rate	No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft.)	Stratum Description Elev. (ft.)	Equipment Installed
5													
10													
15		S-3	14.0-14.8	10	9	49	100	S-3: S-3A: Very dense, brown, fine to medium SAND, trace Clay, little Silt, wet. S-3: S-3B: Very dense, brown, GRAVEL, little fine to coarse Sand, wet. End of exploration at 14.8 feet.	2 3	PID = 2	14.8		<p>Backfill 1.5' Bentonite seal 2.5' 2" ID Solid Sch 40 PVC Well Riser 4.5' Filter Sand 2" ID Slotted Sch 40 PVC Well Screen (0.01" Slot) 14.5'</p>
20													
25													
30													

REMARKS
1 - Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2 - Soil sample collected for laboratory analysis (ID = MW-8, S3)
3 - Split spoon sampler and auger refusal at 14.8 feet.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
MW-8

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

NHDES
Breton Cleaners
Somersworth, New Hampshire
1 Winter Street

EXPLORATION NO.: MW-8A
SHEET: 1 of 1
PROJECT NO: 04.0190325.10
REVIEWED BY: A. Doherty

Logged By: M. Murphy
Drilling Co.: New England Boring Contractors
Foreman: M. Soucy

Type of Rig: Remote Rig
Rig Model: Diedrich D-50
Drilling Method: HSA

Boring Location: See Plan
Ground Surface Elev. (ft.): NA
Final Boring Depth (ft.): 12.5
Date Start - Finish: 10/31/2016 - 10/31/2016

H. Datum:
V. Datum: NAD 83

Hammer Type: Cat Head
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.00

Sampler Type:
Sampler O.D. (in.):
Sampler Length (in.):
Rock Core Size:

Groundwater Depth (ft.)

Date	Time	Stab. Time	Water	Casing
10/31/2016	10:23 AM		8.50	9.00

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Description Elev. (ft.)	Equipment Installed
		S-1	0.0-2.0	24	14	4 7 9 10	16	S-1: Medium dense, dark brown to light brown, fine to coarse SAND, little Silt, little Gravel, dry, 2" of organic material at surface.	1	PID = 0		No Equipment Installed
5		S-2	4.0-6.0	24	10	6 2 3 3	5	S-2: Loose, light brown, fine to coarse SAND, little Silt, little Gravel, trace Clay, moist.	2 3	PID = 0		
10		S-3	9.0-10.0	12	7	12 100		S-3: Very dense, brown, fine to coarse SAND, some Gravel, little Silt, trace Clay, wet, Black staining at 10'; water level measured at 8.5' bgs.	4 5	PID = 0		
15								End of exploration at 12.5 feet.	6	PID = 130		
20												
25												
30												

REMARKS

- 1 - Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- 2 - Difficult drilling encountered.
- 3 - Wood observed in cuttings.
- 4 - Difficult drilling encountered.
- 5 - Soil sample collected for laboratory analysis (ID = MW-8, S3(2)).
- 6 - Encountered refusal.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
MW-8A

LOG KEY



GZA
Geo Environmental, Inc.
Engineers and Scientists

BURMISTER SOIL CLASSIFICATION (INORGANIC)

COMPONENT	NAME	PROPORTIONAL TERM	PERCENT BY WEIGHT	IDENTIFICATION OF FINES		
				Material	PI	Atterberg Thread Dia.
MAJOR	GRAVEL, SAND, FINES*		>50	SILT	0	Cannot Roll
Minor	Gravel, Sand, Fines*	and	35 - 50	Clayey SILT	1-5	1/4"
		some	20-35	SILT & CLAY	5-10	1/8"
		little	10-20	CLAY & SILT	10-20	1/16"
		trace	0-10	Silty CLAY	20-40	1/32"
				CLAY	>40	1/64"

*See identification of fines table.

GRADATION DESIGNATION	PROPORTION OF COMPONENT	PLASTIC SOILS		GRAVEL & SAND	
		Consistency	Blows/Ft. SPT N-Value	Density	Blows/Ft. SPT N-Value
Fine to coarse	All fractions > 10%	Very Soft	< 2	Very Loose	< 4
Medium to coarse	<10% fine	Soft	2 - 4	Loose	4 - 10
Fine to medium	<10% coarse	Medium Stiff	4 - 8	Medium Dense	10 - 30
Coarse	<10% fine and medium	Stiff	8 - 15	Dense	30 - 50
Medium	<10% coarse and fine	Very Stiff	15 - 30	Very Dense	> 50
Fine	<10% coarse and medium	Hard	>30		

BURMISTER SOIL CLASSIFICATION (ORGANIC)

Fibrous PEAT (Pt) - Lightweight, spongy, mostly visible organic matter, water squeezes readily from sample. Typically near top of deposit.
 Fine Grained PEAT (Pt) - Lightweight, spongy, little visible organic matter, water squeezes readily from sample. Typically below fibrous peat.
 Organic Silt (OL) - Typically gray to dark gray, often has strong H₂S odor. Typically contains shells or shell fragments. Lightweight. Usually found near coastal regions. May contain wide range of sand fractions.
 Organic Clay (OH) - Typically gray to dark gray, high plasticity. Usually found near coastal regions. May contain wide range of sand fractions. Need organic content test for final identification.

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) (ASTM D 2487)

MAJOR DIVISIONS		Group Symbols	
Coarse Grained Soils More than 50% of material larger than No. 200 sieve	Gravel More than 50% larger than No. 4 sieve	Clean Gravels (Little or no fines)	GW GP
		Gravels with Fines (Appreciable amount of fines)	GM GC
	Sand More than 50% smaller than No. 4 sieve	Clean Sands (Little or no fines)	SW SP
		Sands with Fines (Appreciable amount of fines)	SM SC
Fine Grained Soils More than 50% of material smaller than No. 200 sieve	Silts and Clays Liquid Limit <50		ML CL
	Silts and Clays Liquid Limit >50		OL MH CH OH
	Highly Organic Soils		Pt

ABBREVIATIONS

MR = Mud Rotary	Tv = Field Vane Shear Test (Torvane)
HSA = Hollow Stem Auger	PP = Pocket Penetrometer
SSA = Solid Stem Auger	PI = Plasticity Index
SS = Split Spoon Sampler	MC = Moisture Content
U = Undisturbed Sample (Shelby Tube)	CO = Consolidation
MC = Modified California Sampler	UC = Unconfined Compression Test
V = Vibracore	SI = Sieve Analysis
M = Macrocore	DS = Direct Shear
R = Refusal	PID = Photoionization Detector
USCS = Unified Soil Classification System (ASTM D2487)	ppm = Parts Per Million
NYCBC = New York City Building Code	REC = Recovery
WOR = Weight of Rods	RQD = Rock Quality Designation
WOH= Weight of Hammer	▼ = Measured Water Level
SPT = Standard Penetration Test (ASTM D1586)	
N-Value = Cumulative number of uncorrected blows for the middle two 6-inch intervals (blows/foot).	



Appendix E – Laboratory Analytical Data Reports



CERTIFICATE OF ANALYSIS

Amy Doherty
GZA GeoEnvironmental, Inc.
5 Commerce Park North
Bedford, NH 03110

RE: Brenton Cleaners (04.0190325.10)
ESS Laboratory Work Order Number: 1611041

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 4:16 pm, Nov 11, 2016

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

SAMPLE RECEIPT

The following samples were received on November 02, 2016 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by client on November 1, 2016.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1611041-01	MW-8, S3	Soil	8260B, 8260B Low
1611041-02	MW-8, S3 (2)	Soil	8260B, 8260B Low
1611041-03	MW-7X	Soil	8260B
1611041-04	Trip Blank	Solid	8260B



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

1611041-01 Reported above the quantitation limit; Estimated value (E).

Tetrachloroethene

1611041-02 Reported above the quantitation limit; Estimated value (E).

cis-1,2-Dichloroethene , Tetrachloroethene

5035/8260B Volatile Organic Compounds / Methanol

CK60741-BS1 Blank Spike recovery is below lower control limit (B-).

1,4-Dioxane - Screen (% @ 44-241%), Tetrahydrofuran (69% @ 70-130%)

CK60741-BSD1 Blank Spike recovery is below lower control limit (B-).

1,4-Dioxane - Screen (% @ 44-241%)

CK60741-BSD1 Relative percent difference for duplicate is outside of criteria (D+).

Chloroethane (28% @ 25%)

CZK0115-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).

Chloromethane (33% @ 30%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3
Date Sampled: 10/31/16 10:00
Percent Solids: 85
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,1,1-Trichloroethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,1,2,2-Tetrachloroethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,1,2-Trichloroethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,1-Dichloroethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,1-Dichloroethene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,1-Dichloropropene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2,3-Trichlorobenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2,3-Trichloropropane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2,4-Trichlorobenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2,4-Trimethylbenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2-Dibromo-3-Chloropropane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2-Dibromoethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2-Dichlorobenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2-Dichloroethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,2-Dichloropropane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,3,5-Trichlorobenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,3,5-Trimethylbenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,3-Dichlorobenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,3-Dichloropropene (Total)	ND (0.0027)		8260B Low		0	11/03/16 22:54		[CALC]
1,4-Dichlorobenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
1,4-Dioxane	ND (0.0645)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
2,2-Dichloropropane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
2-Butanone	ND (0.0323)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
2-Chlorotoluene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
2-Hexanone	ND (0.0323)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
4-Chlorotoluene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
4-Isopropyltoluene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
4-Methyl-2-Pentanone	ND (0.0323)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Acetone	ND (0.0323)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Acrylonitrile	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Allyl Chloride	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3
Date Sampled: 10/31/16 10:00
Percent Solids: 85
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Bromobenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Bromochloromethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Bromodichloromethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Bromoform	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Bromomethane	ND (0.0065)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Carbon Disulfide	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Carbon Tetrachloride	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Chlorobenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Chloroethane	ND (0.0065)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Chloroform	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Chloromethane	ND (0.0065)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
cis-1,2-Dichloroethene	0.0474 (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Dibromochloromethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Dibromomethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Dichlorodifluoromethane	ND (0.0065)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Diethyl Ether	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Di-isopropyl ether	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Ethyl tertiary-butyl ether	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Ethylbenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Hexachlorobutadiene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Isopropylbenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Methyl tert-Butyl Ether	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Methylene Chloride	ND (0.0161)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Naphthalene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
n-Butylbenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
n-Propylbenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
sec-Butylbenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Styrene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
tert-Butylbenzene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Tertiary-amyl methyl ether	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Tertiary-butyl Alcohol	ND (0.0323)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3
Date Sampled: 10/31/16 10:00
Percent Solids: 85
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrachloroethene	E 0.254 (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Tetrahydrofuran	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Toluene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
trans-1,2-Dichloroethene	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Trichloroethene	0.0186 (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Trichlorofluoromethane	ND (0.0032)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Vinyl Chloride	ND (0.0065)		8260B Low		1	11/03/16 22:54	CZK0059	CK60324
Xylenes (Total)	ND (0.0055)		8260B Low		1	11/03/16 22:54		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichloroethane-d4	89 %		70-130
Surrogate: 4-Bromofluorobenzene	89 %		70-130
Surrogate: Dibromofluoromethane	90 %		70-130
Surrogate: Toluene-d8	89 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3
Date Sampled: 10/31/16 10:00
Percent Solids: 85
Initial Volume: 25.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,1,1-Trichloroethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,1,2,2-Tetrachloroethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,1,2-Trichloroethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,1-Dichloroethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,1-Dichloroethene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,1-Dichloropropene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2,3-Trichlorobenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2,3-Trichloropropane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2,4-Trichlorobenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2,4-Trimethylbenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2-Dibromo-3-Chloropropane	ND (0.855)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2-Dibromoethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2-Dichlorobenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2-Dichloroethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,2-Dichloropropane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,3 Dichloropropene (Total)	ND (0.171)		8260B		1	11/07/16 18:36		[CALC]
1,3,5-Trichlorobenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,3,5-Trimethylbenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,3-Dichlorobenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,4-Dichlorobenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
1,4-Dioxane - Screen	ND (34.2)		8260B		1	11/07/16 18:36	CZK0115	CK60741
2,2-Dichloropropane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
2-Butanone	ND (0.855)		8260B		1	11/07/16 18:36	CZK0115	CK60741
2-Chlorotoluene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
2-Hexanone	ND (0.855)		8260B		1	11/07/16 18:36	CZK0115	CK60741
4-Chlorotoluene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
4-Isopropyltoluene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
4-Methyl-2-Pentanone	ND (0.855)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Acetone	ND (0.855)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Acrylonitrile	ND (0.855)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Allyl Chloride	ND (0.342)		8260B		1	11/07/16 18:36	CZK0115	CK60741



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3
Date Sampled: 10/31/16 10:00
Percent Solids: 85
Initial Volume: 25.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Bromobenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Bromochloromethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Bromodichloromethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Bromoform	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Bromomethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Carbon Disulfide	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Carbon Tetrachloride	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Chlorobenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Chloroethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Chloroform	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Chloromethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
cis-1,2-Dichloroethene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Dibromochloromethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Dibromomethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Dichlorodifluoromethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Diethyl Ether	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Di-isopropyl ether	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Ethyl tertiary-butyl ether	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Ethylbenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Hexachlorobutadiene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Isopropylbenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Methyl tert-Butyl Ether	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Methylene Chloride	ND (0.342)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Naphthalene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
n-Butylbenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
n-Propylbenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
sec-Butylbenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Styrene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
tert-Butylbenzene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Tertiary-amyl methyl ether	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Tetrachloroethene	0.819 (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3
Date Sampled: 10/31/16 10:00
Percent Solids: 85
Initial Volume: 25.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.855)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Toluene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
trans-1,2-Dichloroethene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Trichloroethene	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Trichlorofluoromethane	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Vinyl Chloride	ND (0.171)		8260B		1	11/07/16 18:36	CZK0115	CK60741
Xylenes (Total)	ND (0.342)		8260B		1	11/07/16 18:36		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>108 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3 (2)
Date Sampled: 10/31/16 11:45
Percent Solids: 75
Initial Volume: 5.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,1,1-Trichloroethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,1,2,2-Tetrachloroethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,1,2-Trichloroethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,1-Dichloroethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,1-Dichloroethene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,1-Dichloropropene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2,3-Trichlorobenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2,3-Trichloropropane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2,4-Trichlorobenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2,4-Trimethylbenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2-Dibromo-3-Chloropropane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2-Dibromoethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2-Dichlorobenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2-Dichloroethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,2-Dichloropropane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,3,5-Trichlorobenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,3,5-Trimethylbenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,3-Dichlorobenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,3-Dichloropropene (Total)	ND (0.0047)		8260B Low		0	11/03/16 23:20		[CALC]
1,4-Dichlorobenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
1,4-Dioxane	ND (0.125)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
2,2-Dichloropropane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
2-Butanone	ND (0.0627)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
2-Chlorotoluene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
2-Hexanone	ND (0.0627)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
4-Chlorotoluene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
4-Isopropyltoluene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
4-Methyl-2-Pentanone	ND (0.0627)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Acetone	0.114 (0.0627)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Acrylonitrile	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Allyl Chloride	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3 (2)
Date Sampled: 10/31/16 11:45
Percent Solids: 75
Initial Volume: 5.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Bromobenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Bromochloromethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Bromodichloromethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Bromoform	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Bromomethane	ND (0.0125)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Carbon Disulfide	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Carbon Tetrachloride	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Chlorobenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Chloroethane	ND (0.0125)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Chloroform	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Chloromethane	ND (0.0125)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
cis-1,2-Dichloroethene	E 2.59 (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Dibromochloromethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Dibromomethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Dichlorodifluoromethane	ND (0.0125)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Diethyl Ether	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Di-isopropyl ether	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Ethyl tertiary-butyl ether	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Ethylbenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Hexachlorobutadiene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Isopropylbenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Methyl tert-Butyl Ether	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Methylene Chloride	ND (0.0313)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Naphthalene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
n-Butylbenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
n-Propylbenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
sec-Butylbenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Styrene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
tert-Butylbenzene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Tertiary-amyl methyl ether	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Tertiary-butyl Alcohol	ND (0.0627)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3 (2)
Date Sampled: 10/31/16 11:45
Percent Solids: 75
Initial Volume: 5.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrachloroethene	E 0.281 (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Tetrahydrofuran	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Toluene	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
trans-1,2-Dichloroethene	0.0448 (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Trichloroethene	0.0452 (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Trichlorofluoromethane	ND (0.0063)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Vinyl Chloride	0.109 (0.0125)		8260B Low		1	11/03/16 23:20	CZK0059	CK60324
Xylenes (Total)	ND (0.0094)		8260B Low		1	11/03/16 23:20		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichloroethane-d4	90 %		70-130
Surrogate: 4-Bromofluorobenzene	85 %		70-130
Surrogate: Dibromofluoromethane	93 %		70-130
Surrogate: Toluene-d8	94 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3 (2)
Date Sampled: 10/31/16 11:45
Percent Solids: 75
Initial Volume: 17.1
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,1,1-Trichloroethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,1,2,2-Tetrachloroethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,1,2-Trichloroethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,1-Dichloroethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,1-Dichloroethene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,1-Dichloropropene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2,3-Trichlorobenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2,3-Trichloropropane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2,4-Trichlorobenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2,4-Trimethylbenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2-Dibromo-3-Chloropropane	ND (1.49)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2-Dibromoethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2-Dichlorobenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2-Dichloroethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,2-Dichloropropane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,3 Dichloropropene (Total)	ND (0.299)		8260B		1	11/07/16 19:02		[CALC]
1,3,5-Trichlorobenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,3,5-Trimethylbenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,3-Dichlorobenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,4-Dichlorobenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
1,4-Dioxane - Screen	ND (59.8)		8260B		1	11/07/16 19:02	CZK0115	CK60741
2,2-Dichloropropane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
2-Butanone	ND (1.49)		8260B		1	11/07/16 19:02	CZK0115	CK60741
2-Chlorotoluene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
2-Hexanone	ND (1.49)		8260B		1	11/07/16 19:02	CZK0115	CK60741
4-Chlorotoluene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
4-Isopropyltoluene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
4-Methyl-2-Pentanone	ND (1.49)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Acetone	ND (1.49)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Acrylonitrile	ND (1.49)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Allyl Chloride	ND (0.598)		8260B		1	11/07/16 19:02	CZK0115	CK60741



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3 (2)
Date Sampled: 10/31/16 11:45
Percent Solids: 75
Initial Volume: 17.1
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Bromobenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Bromochloromethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Bromodichloromethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Bromoform	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Bromomethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Carbon Disulfide	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Carbon Tetrachloride	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Chlorobenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Chloroethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Chloroform	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Chloromethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
cis-1,2-Dichloroethene	4.07 (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Dibromochloromethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Dibromomethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Dichlorodifluoromethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Diethyl Ether	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Di-isopropyl ether	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Ethyl tertiary-butyl ether	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Ethylbenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Hexachlorobutadiene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Isopropylbenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Methyl tert-Butyl Ether	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Methylene Chloride	ND (0.598)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Naphthalene	0.864 (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
n-Butylbenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
n-Propylbenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
sec-Butylbenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Styrene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
tert-Butylbenzene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Tertiary-amyl methyl ether	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Tetrachloroethene	2.90 (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8, S3 (2)
Date Sampled: 10/31/16 11:45
Percent Solids: 75
Initial Volume: 17.1
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (1.49)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Toluene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
trans-1,2-Dichloroethene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Trichloroethene	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Trichlorofluoromethane	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Vinyl Chloride	ND (0.299)		8260B		1	11/07/16 19:02	CZK0115	CK60741
Xylenes (Total)	ND (0.598)		8260B		1	11/07/16 19:02		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	87 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	82 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	90 %		70-130
<i>Surrogate: Toluene-d8</i>	90 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-7X
Date Sampled: 10/31/16 16:30
Percent Solids: 71
Initial Volume: 6.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,1,1-Trichloroethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,1,2,2-Tetrachloroethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,1,2-Trichloroethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,1-Dichloroethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,1-Dichloroethene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,1-Dichloropropene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2,3-Trichlorobenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2,3-Trichloropropane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2,4-Trichlorobenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2,4-Trimethylbenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2-Dibromo-3-Chloropropane	ND (3.48)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2-Dibromoethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2-Dichlorobenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2-Dichloroethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,2-Dichloropropane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,3 Dichloropropene (Total)	ND (0.695)		8260B		1	11/07/16 17:44		[CALC]
1,3,5-Trichlorobenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,3,5-Trimethylbenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,3-Dichlorobenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,4-Dichlorobenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
1,4-Dioxane - Screen	ND (139)		8260B		1	11/07/16 17:44	CZK0115	CK60741
2,2-Dichloropropane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
2-Butanone	ND (3.48)		8260B		1	11/07/16 17:44	CZK0115	CK60741
2-Chlorotoluene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
2-Hexanone	ND (3.48)		8260B		1	11/07/16 17:44	CZK0115	CK60741
4-Chlorotoluene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
4-Isopropyltoluene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
4-Methyl-2-Pentanone	ND (3.48)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Acetone	ND (3.48)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Acrylonitrile	ND (3.48)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Allyl Chloride	ND (1.39)		8260B		1	11/07/16 17:44	CZK0115	CK60741



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-7X
Date Sampled: 10/31/16 16:30
Percent Solids: 71
Initial Volume: 6.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Bromobenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Bromochloromethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Bromodichloromethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Bromoform	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Bromomethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Carbon Disulfide	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Carbon Tetrachloride	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Chlorobenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Chloroethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Chloroform	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Chloromethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
cis-1,2-Dichloroethene	1.48 (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Dibromochloromethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Dibromomethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Dichlorodifluoromethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Diethyl Ether	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Di-isopropyl ether	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Ethyl tertiary-butyl ether	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Ethylbenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Hexachlorobutadiene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Isopropylbenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Methyl tert-Butyl Ether	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Methylene Chloride	ND (1.39)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Naphthalene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
n-Butylbenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
n-Propylbenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
sec-Butylbenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Styrene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
tert-Butylbenzene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Tertiary-amyl methyl ether	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Tetrachloroethene	2.98 (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-7X
Date Sampled: 10/31/16 16:30
Percent Solids: 71
Initial Volume: 6.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (3.48)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Toluene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
trans-1,2-Dichloroethene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Trichloroethene	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Trichlorofluoromethane	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Vinyl Chloride	ND (0.695)		8260B		1	11/07/16 17:44	CZK0115	CK60741
Xylenes (Total)	ND (1.39)		8260B		1	11/07/16 17:44		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	98 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	99 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	101 %		70-130
<i>Surrogate: Toluene-d8</i>	108 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: Trip Blank
Date Sampled: 10/31/16 00:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-04
Sample Matrix: Solid
Units: mg/kg
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,1,1-Trichloroethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,1,2,2-Tetrachloroethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,1,2-Trichloroethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,1-Dichloroethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,1-Dichloroethene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,1-Dichloropropene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2,3-Trichlorobenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2,3-Trichloropropane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2,4-Trichlorobenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2,4-Trimethylbenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2-Dibromo-3-Chloropropane	ND (1.00)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2-Dibromoethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2-Dichlorobenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2-Dichloroethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,2-Dichloropropane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,3,5-Trichlorobenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,3,5-Trimethylbenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,3-Dichlorobenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,3-Dichloropropane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,4-Dichlorobenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1,4-Dioxane - Screen	ND (40.0)		8260B		1	11/07/16 15:34	CZK0115	CK60741
1-Chlorohexane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
2,2-Dichloropropane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
2-Butanone	ND (1.00)		8260B		1	11/07/16 15:34	CZK0115	CK60741
2-Chlorotoluene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
2-Hexanone	ND (1.00)		8260B		1	11/07/16 15:34	CZK0115	CK60741
4-Chlorotoluene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
4-Isopropyltoluene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
4-Methyl-2-Pentanone	ND (1.00)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Acetone	ND (1.00)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Acrylonitrile	ND (1.00)		8260B		1	11/07/16 15:34	CZK0115	CK60741



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: Trip Blank
Date Sampled: 10/31/16 00:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-04
Sample Matrix: Solid
Units: mg/kg
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Allyl Chloride	ND (0.400)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Benzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Bromobenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Bromochloromethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Bromodichloromethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Bromoform	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Bromomethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Carbon Disulfide	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Carbon Tetrachloride	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Chlorobenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Chloroethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Chloroform	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Chloromethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
cis-1,2-Dichloroethene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
cis-1,3-Dichloropropene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Dibromochloromethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Dibromomethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Dichlorodifluoromethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Diethyl Ether	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Di-isopropyl ether	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Ethyl tertiary-butyl ether	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Ethylbenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Hexachlorobutadiene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Isopropylbenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Methyl tert-Butyl Ether	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Methylene Chloride	ND (0.400)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Naphthalene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
n-Butylbenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
n-Propylbenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
sec-Butylbenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Styrene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
tert-Butylbenzene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: Trip Blank
Date Sampled: 10/31/16 00:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1611041
ESS Laboratory Sample ID: 1611041-04
Sample Matrix: Solid
Units: mg/kg
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Tetrachloroethene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Tetrahydrofuran	ND (1.00)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Toluene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
trans-1,2-Dichloroethene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
trans-1,3-Dichloropropene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Trichloroethene	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Trichlorofluoromethane	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Vinyl Acetate	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Vinyl Chloride	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Xylene O	ND (0.200)		8260B		1	11/07/16 15:34	CZK0115	CK60741
Xylene P,M	ND (0.400)		8260B		1	11/07/16 15:34	CZK0115	CK60741

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>90 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CK60324 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethene	ND	0.0050	mg/kg wet
1,1-Dichloropropene	ND	0.0050	mg/kg wet
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet
1,2-Dibromoethane	ND	0.0050	mg/kg wet
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet
1,2-Dichloroethane	ND	0.0050	mg/kg wet
1,2-Dichloropropane	ND	0.0050	mg/kg wet
1,3,5-Trichlorobenzene	ND	0.0050	mg/kg wet
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet
1,3-Dichloropropene (Total)	ND	0.0050	mg/kg
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet
1,4-Dioxane	ND	0.100	mg/kg wet
2,2-Dichloropropane	ND	0.0050	mg/kg wet
2-Butanone	ND	0.0500	mg/kg wet
2-Chlorotoluene	ND	0.0050	mg/kg wet
2-Hexanone	ND	0.0500	mg/kg wet
4-Chlorotoluene	ND	0.0050	mg/kg wet
4-Isopropyltoluene	ND	0.0050	mg/kg wet
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet
Acetone	ND	0.0500	mg/kg wet
Acrylonitrile	ND	0.0050	mg/kg wet
Allyl Chloride	ND	0.0050	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Bromobenzene	ND	0.0050	mg/kg wet
Bromochloromethane	ND	0.0050	mg/kg wet
Bromodichloromethane	ND	0.0050	mg/kg wet
Bromoform	ND	0.0050	mg/kg wet
Bromomethane	ND	0.0100	mg/kg wet
Carbon Disulfide	ND	0.0050	mg/kg wet
Carbon Tetrachloride	ND	0.0050	mg/kg wet
Chlorobenzene	ND	0.0050	mg/kg wet
Chloroethane	ND	0.0100	mg/kg wet
Chloroform	ND	0.0050	mg/kg wet
Chloromethane	ND	0.0100	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CK60324 - 5035

cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tertiary-butyl Alcohol	ND	0.0500	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylenes (Total)	ND	0.0100	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.0412		mg/kg wet	0.05000		82	70-130			
Surrogate: 4-Bromofluorobenzene	0.0450		mg/kg wet	0.05000		90	70-130			
Surrogate: Dibromofluoromethane	0.0436		mg/kg wet	0.05000		87	70-130			
Surrogate: Toluene-d8	0.0462		mg/kg wet	0.05000		92	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0524	0.0050	mg/kg wet	0.05000		105	70-130			
1,1,1-Trichloroethane	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
1,1,2,2-Tetrachloroethane	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
1,1,2-Trichloroethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
1,1-Dichloroethane	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
1,1-Dichloroethene	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
1,1-Dichloropropene	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
1,2,3-Trichlorobenzene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
1,2,3-Trichloropropane	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
1,2,4-Trichlorobenzene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
1,2,4-Trimethylbenzene	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			
1,2-Dibromo-3-Chloropropane	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CK60324 - 5035

1,2-Dibromoethane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
1,2-Dichlorobenzene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130			
1,2-Dichloroethane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
1,2-Dichloropropane	0.0442	0.0050	mg/kg wet	0.05000		88	70-130			
1,3,5-Trichlorobenzene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
1,3,5-Trimethylbenzene	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
1,3-Dichlorobenzene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
1,3-Dichloropropene (Total)	0.0861	0.0050	mg/kg							
1,4-Dichlorobenzene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
1,4-Dioxane	0.977	0.100	mg/kg wet	1.000		98	70-130			
2,2-Dichloropropane	0.0418	0.0050	mg/kg wet	0.05000		84	70-130			
2-Butanone	0.231	0.0500	mg/kg wet	0.2500		92	70-130			
2-Chlorotoluene	0.0444	0.0050	mg/kg wet	0.05000		89	70-130			
2-Hexanone	0.213	0.0500	mg/kg wet	0.2500		85	70-130			
4-Chlorotoluene	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
4-Isopropyltoluene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
4-Methyl-2-Pentanone	0.216	0.0500	mg/kg wet	0.2500		87	70-130			
Acetone	0.219	0.0500	mg/kg wet	0.2500		88	70-130			
Acrylonitrile	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			
Allyl Chloride	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
Benzene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130			
Bromobenzene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
Bromochloromethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
Bromodichloromethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
Bromoform	0.0604	0.0050	mg/kg wet	0.05000		121	70-130			
Bromomethane	0.0517	0.0100	mg/kg wet	0.05000		103	70-130			
Carbon Disulfide	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
Carbon Tetrachloride	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
Chlorobenzene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
Chloroethane	0.0427	0.0100	mg/kg wet	0.05000		85	70-130			
Chloroform	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
Chloromethane	0.0472	0.0100	mg/kg wet	0.05000		94	70-130			
cis-1,2-Dichloroethene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
Dibromochloromethane	0.0528	0.0050	mg/kg wet	0.05000		106	70-130			
Dibromomethane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
Dichlorodifluoromethane	0.0407	0.0100	mg/kg wet	0.05000		81	70-130			
Diethyl Ether	0.0454	0.0050	mg/kg wet	0.05000		91	70-130			
Di-isopropyl ether	0.0427	0.0050	mg/kg wet	0.05000		85	70-130			
Ethyl tertiary-butyl ether	0.0403	0.0050	mg/kg wet	0.05000		81	70-130			
Ethylbenzene	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
Hexachlorobutadiene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Isopropylbenzene	0.0381	0.0050	mg/kg wet	0.05000		76	70-130			
Methyl tert-Butyl Ether	0.0437	0.0050	mg/kg wet	0.05000		87	70-130			
Methylene Chloride	0.0475	0.0250	mg/kg wet	0.05000		95	70-130			
Naphthalene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CK60324 - 5035

n-Butylbenzene	0.0450	0.0050	mg/kg wet	0.05000		90	70-130			
n-Propylbenzene	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
sec-Butylbenzene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
Styrene	0.0465	0.0050	mg/kg wet	0.05000		93	70-130			
tert-Butylbenzene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Tertiary-amyl methyl ether	0.0405	0.0050	mg/kg wet	0.05000		81	70-130			
Tertiary-butyl Alcohol	0.226	0.0500	mg/kg wet	0.2500		90	70-130			
Tetrachloroethene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
Tetrahydrofuran	0.0392	0.0050	mg/kg wet	0.05000		78	70-130			
Toluene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
trans-1,2-Dichloroethene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
Trichloroethene	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
Trichlorofluoromethane	0.0419	0.0050	mg/kg wet	0.05000		84	70-130			
Vinyl Chloride	0.0483	0.0100	mg/kg wet	0.05000		97	70-130			
Xylenes (Total)	0.143	0.0100	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.0470		mg/kg wet	0.05000		94	70-130			
Surrogate: 4-Bromofluorobenzene	0.0460		mg/kg wet	0.05000		92	70-130			
Surrogate: Dibromofluoromethane	0.0491		mg/kg wet	0.05000		98	70-130			
Surrogate: Toluene-d8	0.0462		mg/kg wet	0.05000		92	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	1	25	
1,1,1-Trichloroethane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	0.1	25	
1,1,2,2-Tetrachloroethane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	3	25	
1,1,2-Trichloroethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	3	25	
1,1-Dichloroethane	0.0453	0.0050	mg/kg wet	0.05000		91	70-130	2	25	
1,1-Dichloroethene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	0.4	25	
1,1-Dichloropropene	0.0463	0.0050	mg/kg wet	0.05000		93	70-130	1	25	
1,2,3-Trichlorobenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
1,2,3-Trichloropropane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	2	25	
1,2,4-Trichlorobenzene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	2	25	
1,2,4-Trimethylbenzene	0.0461	0.0050	mg/kg wet	0.05000		92	70-130	2	25	
1,2-Dibromo-3-Chloropropane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	4	25	
1,2-Dibromoethane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	1	25	
1,2-Dichlorobenzene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130	3	25	
1,2-Dichloroethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	1	25	
1,2-Dichloropropane	0.0454	0.0050	mg/kg wet	0.05000		91	70-130	3	25	
1,3,5-Trichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	1	25	
1,3,5-Trimethylbenzene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130	0.6	25	
1,3-Dichlorobenzene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	1	25	
1,3-Dichloropropene (Total)	0.0886	0.0050	mg/kg							
1,4-Dichlorobenzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	1	25	
1,4-Dioxane	1.09	0.100	mg/kg wet	1.000		109	70-130	11	20	
2,2-Dichloropropane	0.0416	0.0050	mg/kg wet	0.05000		83	70-130	0.5	25	
2-Butanone	0.240	0.0500	mg/kg wet	0.2500		96	70-130	4	25	
2-Chlorotoluene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130	0.6	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CK60324 - 5035

2-Hexanone	0.222	0.0500	mg/kg wet	0.2500		89	70-130	4	25	
4-Chlorotoluene	0.0448	0.0050	mg/kg wet	0.05000		90	70-130	2	25	
4-Isopropyltoluene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	0.2	25	
4-Methyl-2-Pentanone	0.225	0.0500	mg/kg wet	0.2500		90	70-130	4	25	
Acetone	0.225	0.0500	mg/kg wet	0.2500		90	70-130	3	25	
Acrylonitrile	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	3	25	
Allyl Chloride	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	1	25	
Benzene	0.0463	0.0050	mg/kg wet	0.05000		93	70-130	1	25	
Bromobenzene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130	2	25	
Bromochloromethane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	3	25	
Bromodichloromethane	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
Bromoform	0.0621	0.0050	mg/kg wet	0.05000		124	70-130	3	25	
Bromomethane	0.0508	0.0100	mg/kg wet	0.05000		102	70-130	2	25	
Carbon Disulfide	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	1	25	
Carbon Tetrachloride	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	0.2	25	
Chlorobenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	1	25	
Chloroethane	0.0419	0.0100	mg/kg wet	0.05000		84	70-130	2	25	
Chloroform	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	1	25	
Chloromethane	0.0471	0.0100	mg/kg wet	0.05000		94	70-130	0.2	25	
cis-1,2-Dichloroethene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	1	25	
Dibromochloromethane	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	1	25	
Dibromomethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
Dichlorodifluoromethane	0.0402	0.0100	mg/kg wet	0.05000		80	70-130	1	25	
Diethyl Ether	0.0464	0.0050	mg/kg wet	0.05000		93	70-130	2	25	
Di-isopropyl ether	0.0438	0.0050	mg/kg wet	0.05000		88	70-130	3	25	
Ethyl tertiary-butyl ether	0.0417	0.0050	mg/kg wet	0.05000		83	70-130	3	25	
Ethylbenzene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130	0.1	25	
Hexachlorobutadiene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	1	25	
Isopropylbenzene	0.0381	0.0050	mg/kg wet	0.05000		76	70-130	0.05	25	
Methyl tert-Butyl Ether	0.0451	0.0050	mg/kg wet	0.05000		90	70-130	3	25	
Methylene Chloride	0.0480	0.0250	mg/kg wet	0.05000		96	70-130	1	25	
Naphthalene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	5	25	
n-Butylbenzene	0.0453	0.0050	mg/kg wet	0.05000		91	70-130	0.5	25	
n-Propylbenzene	0.0448	0.0050	mg/kg wet	0.05000		90	70-130	0.4	25	
sec-Butylbenzene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130	0.1	25	
Styrene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	0.3	25	
tert-Butylbenzene	0.0468	0.0050	mg/kg wet	0.05000		94	70-130	0.9	25	
Tertiary-amyl methyl ether	0.0416	0.0050	mg/kg wet	0.05000		83	70-130	3	25	
Tertiary-butyl Alcohol	0.238	0.0500	mg/kg wet	0.2500		95	70-130	5	20	
Tetrachloroethene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130	1	25	
Tetrahydrofuran	0.0406	0.0050	mg/kg wet	0.05000		81	70-130	4	25	
Toluene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130	0.8	25	
trans-1,2-Dichloroethene	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	1	25	
Trichloroethene	0.0465	0.0050	mg/kg wet	0.05000		93	70-130	1	25	
Trichlorofluoromethane	0.0417	0.0050	mg/kg wet	0.05000		83	70-130	0.4	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CK60324 - 5035

Vinyl Chloride	0.0484	0.0100	mg/kg wet	0.05000		97	70-130	0.1	25	
Xylenes (Total)	0.144	0.0100	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.0477		mg/kg wet	0.05000		95	70-130			
Surrogate: 4-Bromofluorobenzene	0.0455		mg/kg wet	0.05000		91	70-130			
Surrogate: Dibromofluoromethane	0.0490		mg/kg wet	0.05000		98	70-130			
Surrogate: Toluene-d8	0.0455		mg/kg wet	0.05000		91	70-130			

5035/8260B Volatile Organic Compounds / Methanol

Batch CK60741 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3 Dichloropropene (Total)	ND	0.200	mg/kg wet							
1,3,5-Trichlorobenzene	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Acrylonitrile	ND	1.00	mg/kg wet							
Allyl Chloride	ND	0.400	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch CK60741 - 5035

Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	5.32		mg/kg wet	5.000		106	70-130			
Surrogate: 4-Bromofluorobenzene	4.72		mg/kg wet	5.000		94	70-130			
Surrogate: Dibromofluoromethane	5.41		mg/kg wet	5.000		108	70-130			
Surrogate: Toluene-d8	5.16		mg/kg wet	5.000		103	70-130			

LCS

1,1,1,2-Tetrachloroethane	1.79	0.200	mg/kg wet	2.000		90	70-130			
1,1,1-Trichloroethane	1.81	0.200	mg/kg wet	2.000		91	70-130			
1,1,2,2-Tetrachloroethane	1.89	0.200	mg/kg wet	2.000		95	70-130			
1,1,2-Trichloroethane	1.83	0.200	mg/kg wet	2.000		91	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch CK60741 - 5035

1,1-Dichloroethane	1.85	0.200	mg/kg wet	2.000		92	70-130			
1,1-Dichloroethene	1.95	0.200	mg/kg wet	2.000		97	70-130			
1,1-Dichloropropene	1.82	0.200	mg/kg wet	2.000		91	70-130			
1,2,3-Trichlorobenzene	1.86	0.200	mg/kg wet	2.000		93	70-130			
1,2,3-Trichloropropane	1.75	0.200	mg/kg wet	2.000		88	70-130			
1,2,4-Trichlorobenzene	1.84	0.200	mg/kg wet	2.000		92	70-130			
1,2,4-Trimethylbenzene	1.68	0.200	mg/kg wet	2.000		84	70-130			
1,2-Dibromo-3-Chloropropane	1.85	1.00	mg/kg wet	2.000		93	70-130			
1,2-Dibromoethane	1.91	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dichlorobenzene	1.79	0.200	mg/kg wet	2.000		90	70-130			
1,2-Dichloroethane	1.74	0.200	mg/kg wet	2.000		87	70-130			
1,2-Dichloropropane	1.62	0.200	mg/kg wet	2.000		81	70-130			
1,3 Dichloropropene (Total)	3.39	0.200	mg/kg wet							
1,3,5-Trichlorobenzene	2.03	0.200	mg/kg wet	2.000		102	70-130			
1,3,5-Trimethylbenzene	1.71	0.200	mg/kg wet	2.000		86	70-130			
1,3-Dichlorobenzene	1.81	0.200	mg/kg wet	2.000		90	70-130			
1,4-Dichlorobenzene	1.76	0.200	mg/kg wet	2.000		88	70-130			
1,4-Dioxane - Screen	ND	40.0	mg/kg wet	40.00			44-241			B-
2,2-Dichloropropane	1.84	0.200	mg/kg wet	2.000		92	70-130			
2-Butanone	9.22	1.00	mg/kg wet	10.00		92	70-130			
2-Chlorotoluene	1.70	0.200	mg/kg wet	2.000		85	70-130			
2-Hexanone	8.65	1.00	mg/kg wet	10.00		87	70-130			
4-Chlorotoluene	1.72	0.200	mg/kg wet	2.000		86	70-130			
4-Isopropyltoluene	1.86	0.200	mg/kg wet	2.000		93	70-130			
4-Methyl-2-Pentanone	8.51	1.00	mg/kg wet	10.00		85	70-130			
Acetone	9.97	1.00	mg/kg wet	10.00		100	70-130			
Acrylonitrile	1.72	1.00	mg/kg wet	2.000		86	70-130			
Allyl Chloride	1.75	0.400	mg/kg wet	2.000		87	70-130			
Benzene	1.77	0.200	mg/kg wet	2.000		88	70-130			
Bromobenzene	1.89	0.200	mg/kg wet	2.000		94	70-130			
Bromochloromethane	1.82	0.200	mg/kg wet	2.000		91	70-130			
Bromodichloromethane	1.79	0.200	mg/kg wet	2.000		90	70-130			
Bromoform	2.06	0.200	mg/kg wet	2.000		103	70-130			
Bromomethane	1.68	0.200	mg/kg wet	2.000		84	70-130			
Carbon Disulfide	1.89	0.200	mg/kg wet	2.000		95	70-130			
Carbon Tetrachloride	1.86	0.200	mg/kg wet	2.000		93	70-130			
Chlorobenzene	1.77	0.200	mg/kg wet	2.000		89	70-130			
Chloroethane	1.43	0.200	mg/kg wet	2.000		72	70-130			
Chloroform	1.81	0.200	mg/kg wet	2.000		90	70-130			
Chloromethane	1.43	0.200	mg/kg wet	2.000		71	70-130			
cis-1,2-Dichloroethene	1.78	0.200	mg/kg wet	2.000		89	70-130			
Dibromochloromethane	1.78	0.200	mg/kg wet	2.000		89	70-130			
Dibromomethane	1.77	0.200	mg/kg wet	2.000		89	70-130			
Dichlorodifluoromethane	1.72	0.200	mg/kg wet	2.000		86	70-130			
Diethyl Ether	1.73	0.200	mg/kg wet	2.000		86	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch CK60741 - 5035

Di-isopropyl ether	1.73	0.200	mg/kg wet	2.000		86	70-130			
Ethyl tertiary-butyl ether	1.65	0.200	mg/kg wet	2.000		83	70-130			
Ethylbenzene	1.74	0.200	mg/kg wet	2.000		87	70-130			
Hexachlorobutadiene	2.04	0.200	mg/kg wet	2.000		102	70-130			
Isopropylbenzene	1.46	0.200	mg/kg wet	2.000		73	70-130			
Methyl tert-Butyl Ether	1.72	0.200	mg/kg wet	2.000		86	70-130			
Methylene Chloride	2.00	0.400	mg/kg wet	2.000		100	70-130			
Naphthalene	1.70	0.200	mg/kg wet	2.000		85	70-130			
n-Butylbenzene	1.83	0.200	mg/kg wet	2.000		92	70-130			
n-Propylbenzene	1.77	0.200	mg/kg wet	2.000		88	70-130			
sec-Butylbenzene	1.80	0.200	mg/kg wet	2.000		90	70-130			
Styrene	1.74	0.200	mg/kg wet	2.000		87	70-130			
tert-Butylbenzene	1.75	0.200	mg/kg wet	2.000		88	70-130			
Tertiary-amyl methyl ether	1.64	0.200	mg/kg wet	2.000		82	70-130			
Tetrachloroethene	2.14	0.200	mg/kg wet	2.000		107	70-130			
Tetrahydrofuran	1.38	1.00	mg/kg wet	2.000		69	70-130			B-
Toluene	1.84	0.200	mg/kg wet	2.000		92	70-130			
trans-1,2-Dichloroethene	1.72	0.200	mg/kg wet	2.000		86	70-130			
Trichloroethene	1.75	0.200	mg/kg wet	2.000		88	70-130			
Trichlorofluoromethane	1.70	0.200	mg/kg wet	2.000		85	70-130			
Vinyl Chloride	1.65	0.200	mg/kg wet	2.000		82	70-130			
Xylenes (Total)	5.45	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	4.58		mg/kg wet	5.000		92	70-130			
Surrogate: 4-Bromofluorobenzene	4.73		mg/kg wet	5.000		95	70-130			
Surrogate: Dibromofluoromethane	4.79		mg/kg wet	5.000		96	70-130			
Surrogate: Toluene-d8	4.97		mg/kg wet	5.000		99	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	1.90	0.200	mg/kg wet	2.000		95	70-130	6	25	
1,1,1-Trichloroethane	1.79	0.200	mg/kg wet	2.000		90	70-130	1	25	
1,1,2,2-Tetrachloroethane	1.94	0.200	mg/kg wet	2.000		97	70-130	3	25	
1,1,2-Trichloroethane	1.86	0.200	mg/kg wet	2.000		93	70-130	2	25	
1,1-Dichloroethane	1.76	0.200	mg/kg wet	2.000		88	70-130	5	25	
1,1-Dichloroethene	1.80	0.200	mg/kg wet	2.000		90	70-130	8	25	
1,1-Dichloropropene	1.80	0.200	mg/kg wet	2.000		90	70-130	1	25	
1,2,3-Trichlorobenzene	1.79	0.200	mg/kg wet	2.000		89	70-130	4	25	
1,2,3-Trichloropropane	1.84	0.200	mg/kg wet	2.000		92	70-130	5	25	
1,2,4-Trichlorobenzene	1.80	0.200	mg/kg wet	2.000		90	70-130	2	25	
1,2,4-Trimethylbenzene	1.62	0.200	mg/kg wet	2.000		81	70-130	4	25	
1,2-Dibromo-3-Chloropropane	1.83	1.00	mg/kg wet	2.000		92	70-130	1	25	
1,2-Dibromoethane	1.87	0.200	mg/kg wet	2.000		93	70-130	2	25	
1,2-Dichlorobenzene	1.75	0.200	mg/kg wet	2.000		87	70-130	3	25	
1,2-Dichloroethane	1.77	0.200	mg/kg wet	2.000		89	70-130	2	25	
1,2-Dichloropropane	1.63	0.200	mg/kg wet	2.000		82	70-130	0.7	25	
1,3 Dichloropropene (Total)	3.52	0.200	mg/kg wet							
1,3,5-Trichlorobenzene	1.95	0.200	mg/kg wet	2.000		97	70-130	4	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch CK60741 - 5035

1,3,5-Trimethylbenzene	1.69	0.200	mg/kg wet	2.000		84	70-130	1	25	
1,3-Dichlorobenzene	1.78	0.200	mg/kg wet	2.000		89	70-130	2	25	
1,4-Dichlorobenzene	1.71	0.200	mg/kg wet	2.000		86	70-130	3	25	
1,4-Dioxane - Screen	ND	40.0	mg/kg wet	40.00			44-241		200	B-
2,2-Dichloropropane	1.83	0.200	mg/kg wet	2.000		91	70-130	0.9	25	
2-Butanone	9.33	1.00	mg/kg wet	10.00		93	70-130	1	25	
2-Chlorotoluene	1.68	0.200	mg/kg wet	2.000		84	70-130	1	25	
2-Hexanone	9.42	1.00	mg/kg wet	10.00		94	70-130	8	25	
4-Chlorotoluene	1.68	0.200	mg/kg wet	2.000		84	70-130	2	25	
4-Isopropyltoluene	1.76	0.200	mg/kg wet	2.000		88	70-130	5	25	
4-Methyl-2-Pentanone	8.69	1.00	mg/kg wet	10.00		87	70-130	2	25	
Acetone	11.3	1.00	mg/kg wet	10.00		113	70-130	13	25	
Acrylonitrile	1.70	1.00	mg/kg wet	2.000		85	70-130	2	25	
Allyl Chloride	1.68	0.400	mg/kg wet	2.000		84	70-130	4	25	
Benzene	1.78	0.200	mg/kg wet	2.000		89	70-130	0.5	25	
Bromobenzene	1.85	0.200	mg/kg wet	2.000		93	70-130	2	25	
Bromochloromethane	1.84	0.200	mg/kg wet	2.000		92	70-130	1	25	
Bromodichloromethane	1.79	0.200	mg/kg wet	2.000		89	70-130	0.2	25	
Bromoform	1.99	0.200	mg/kg wet	2.000		100	70-130	3	25	
Bromomethane	1.79	0.200	mg/kg wet	2.000		90	70-130	6	25	
Carbon Disulfide	1.85	0.200	mg/kg wet	2.000		92	70-130	2	25	
Carbon Tetrachloride	1.88	0.200	mg/kg wet	2.000		94	70-130	1	25	
Chlorobenzene	1.80	0.200	mg/kg wet	2.000		90	70-130	2	25	
Chloroethane	1.89	0.200	mg/kg wet	2.000		94	70-130	28	25	D+
Chloroform	1.82	0.200	mg/kg wet	2.000		91	70-130	1	25	
Chloromethane	1.41	0.200	mg/kg wet	2.000		71	70-130	0.8	25	
cis-1,2-Dichloroethene	1.70	0.200	mg/kg wet	2.000		85	70-130	5	25	
Dibromochloromethane	1.82	0.200	mg/kg wet	2.000		91	70-130	2	25	
Dibromomethane	1.75	0.200	mg/kg wet	2.000		88	70-130	1	25	
Dichlorodifluoromethane	1.66	0.200	mg/kg wet	2.000		83	70-130	4	25	
Diethyl Ether	1.53	0.200	mg/kg wet	2.000		76	70-130	12	25	
Di-isopropyl ether	1.75	0.200	mg/kg wet	2.000		88	70-130	2	25	
Ethyl tertiary-butyl ether	1.71	0.200	mg/kg wet	2.000		86	70-130	4	25	
Ethylbenzene	1.74	0.200	mg/kg wet	2.000		87	70-130	0.2	25	
Hexachlorobutadiene	2.03	0.200	mg/kg wet	2.000		102	70-130	0.3	25	
Isopropylbenzene	1.46	0.200	mg/kg wet	2.000		73	70-130	0	25	
Methyl tert-Butyl Ether	1.62	0.200	mg/kg wet	2.000		81	70-130	6	25	
Methylene Chloride	1.86	0.400	mg/kg wet	2.000		93	70-130	7	25	
Naphthalene	1.70	0.200	mg/kg wet	2.000		85	70-130	0.1	25	
n-Butylbenzene	1.80	0.200	mg/kg wet	2.000		90	70-130	2	25	
n-Propylbenzene	1.69	0.200	mg/kg wet	2.000		84	70-130	5	25	
sec-Butylbenzene	1.74	0.200	mg/kg wet	2.000		87	70-130	3	25	
Styrene	1.71	0.200	mg/kg wet	2.000		86	70-130	2	25	
tert-Butylbenzene	1.70	0.200	mg/kg wet	2.000		85	70-130	3	25	
Tertiary-amyl methyl ether	1.69	0.200	mg/kg wet	2.000		84	70-130	3	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch CK60741 - 5035

Tetrachloroethene	2.04	0.200	mg/kg wet	2.000		102	70-130	5	25	
Tetrahydrofuran	1.61	1.00	mg/kg wet	2.000		80	70-130	15	25	
Toluene	1.78	0.200	mg/kg wet	2.000		89	70-130	3	25	
trans-1,2-Dichloroethene	1.78	0.200	mg/kg wet	2.000		89	70-130	4	25	
Trichloroethene	1.79	0.200	mg/kg wet	2.000		90	70-130	2	25	
Trichlorofluoromethane	1.73	0.200	mg/kg wet	2.000		86	70-130	2	25	
Vinyl Chloride	1.64	0.200	mg/kg wet	2.000		82	70-130	0.2	25	
Xylenes (Total)	5.38	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	4.66		mg/kg wet	5.000		93	70-130			
Surrogate: 4-Bromofluorobenzene	4.81		mg/kg wet	5.000		96	70-130			
Surrogate: Dibromofluoromethane	4.91		mg/kg wet	5.000		98	70-130			
Surrogate: Toluene-d8	5.02		mg/kg wet	5.000		100	70-130			



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 1611041

Notes and Definitions

U	Analyte included in the analysis, but not detected
E	Reported above the quantitation limit; Estimated value (E).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611041

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Bedford, NH - GZA/CMT

ESS Project ID: 1611041

Shipped/Delivered Via: ESS Courier

Date Received: 11/2/2016

Project Due Date: 11/9/2016

Days for Project: 5 Day

1. Air bill manifest present? ☐ No

Air No.: NA

6. Does COC match bottles? ☐ Yes

2. Were custody seals present? ☐ Yes

7. Is COC complete and correct? ☐ Yes

3. Is radiation count <100 CPM? ☐ Yes

8. Were samples received intact? ☐ Yes

4. Is a Cooler Present? ☐ Yes

Temp: 2.1 Iced with: Ice

9. Were labs informed about short holds & rushes? Yes / No ☒ N/A

5. Was COC signed and dated by client? ☐ Yes

10. Were any analyses received outside of hold time? Yes ☒ No

11. Any Subcontracting needed? Yes ☒ No

ESS Sample IDs:

Analysis:

TAT:

12. Were VOAs received?

a. Air bubbles in aqueous VOAs?

b. Does methanol cover soil completely?

☒ Yes / No

☒ Yes / No

☒ Yes / No / N/A

13. Are the samples properly preserved? ☒ Yes / No

a. If metals preserved upon receipt:

b. Low Level VOA vials frozen:

Date: 11/2/16

Date: 11/2/16

Time: 1847

Time: 1847

By: JL

By: JL

Sample Receiving Notes:

NO INDICATION THAT LL VIALS WERE FROZEN W/ 11/2/16

TB = 30 VIALS MeOH - NO LL VIALS W/ 11/2/16

14. Was there a need to contact Project Manager?

a. Was there a need to contact the client?

Who was contacted? Megan Murphy

Date: 11/03/16

Time: 1847

By: CMT

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	79467	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	79474	Yes	NA	Yes	VOA Vial - Other	Other	
01	79475	Yes	NA	Yes	VOA Vial - Other	Other	
01	79478	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	79466	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	79472	Yes	NA	Yes	VOA Vial - Other	Other	
02	79473	Yes	NA	Yes	VOA Vial - Other	Other	
02	79477	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
03	79465	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	79470	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	79471	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	79476	Yes	NA	Yes	Other - Unpres	NP	
04	79464	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
04	79468	Yes	NA	Yes	VOA Vial - Other	Other	
04	79469	Yes	NA	Yes	VOA Vial - Other	Other	

MeOH w/ 11/2/16
Methanol
Methanol

2nd Review

Are barcode labels on correct containers?

☒ Yes / No

Completed

By: [Signature]

Date & Time: 11/2/16

1830

Reviewed

By: [Signature]

Date & Time: 11/2/16

1847

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Bedford, NH - GZA/CMT

ESS Project ID: 1611041

Date Received: 11/2/2016

Delivered By: *[Signature]* 11/2/16 1847



ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211

Tel. (401) 461-7181 Fax (401) 461-4486

www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab #

1611041

Turn Time ☒ Standard Other _____

Regulatory State: MA RI CT ☒ NH NJ NY ME Other _____

Is this project for any of the following: (please circle)

MA-MCP Navy USACE CT DEP Other _____

Reporting Limits - _____

Electronic Deliverables Excel Access PDF

Co. Name Amy Doherty

Contact Person GZA

City Bedford

Tel. 603-232-8731

Project # 04.0190325.10

Project Name Brenton Cleaners

Address 5 Commerce Park North

State NH

Zip 03110

Fax. _____

email: _____

Analysis

VOCs 8260

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container										
1	10-31-16	1000	G	S	MW-8, S3	6	4	G/VOA	8oz/40mL	X									
2		1145		S	MW-8, S3 (2)	1	1	L	L										
3		1630		S	MW-7X	1	3*	VOA	40mL										
		1735		GW	MW-8	2	3	VOA	40mL										
	11-1-16	1030			MW-7X														
		1200			MW-3														
		1325			MW-1														
		1415			MW-5														
4	10-31-16	800	G	S	TB	6	3	VOA	40mL	X									

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present ☒ Yes ☐ No

Internal Use Only ☐

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAc2, 9-_____

Seals Intact ☒ Yes ☐ No NA: ☒

☒ Pickup

Sampled by: MEM

Cooler Temperature: ice Temp 21

☐ Technician _____

Comments: * syringe filled for % solids

Relinquished by: (Signature, Date & Time)

11-2-16 800

Received by: (Signature, Date & Time)

11/2/16 11:21

Relinquished by: (Signature, Date & Time)

11/2/16 1727

Received by: (Signature, Date & Time)

11/2/16 1814

Relinquished by: (Signature, Date & Time)

Received by: (Signature, Date & Time)

Relinquished by: (Signature, Date & Time)

Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy

2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Amy Doherty
GZA GeoEnvironmental, Inc.
5 Commerce Park North
Bedford, NH 03110

RE: Brenton Cleaners (04.0190325.01)
ESS Laboratory Work Order Number: 1611042

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 1:47 pm, Nov 09, 2016

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

SAMPLE RECEIPT

The following samples were received on November 02, 2016 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1611042-01	MW-8	Ground Water	8260B
1611042-02	MW-7X	Ground Water	8260B
1611042-03	MW-3	Ground Water	8260B
1611042-04	MW-1	Ground Water	8260B
1611042-05	MW-5	Ground Water	8260B



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

[Definitions of Quality Control Parameters](#)
[Semivolatile Organics Internal Standard Information](#)
[Semivolatile Organics Surrogate Information](#)
[Volatile Organics Internal Standard Information](#)
[Volatile Organics Surrogate Information](#)
[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8
Date Sampled: 10/31/16 17:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,1-Dichloroethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,1-Dichloroethene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,1-Dichloropropene	ND (2.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2-Dibromoethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2-Dichloroethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,3 Dichloropropene (Total)	ND (0.4)		8260B		1	11/03/16 12:20		[CALC]
1,3,5-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
1,4-Dioxane - Screen	ND (500)		8260B		1	11/03/16 12:20	CZK0060	CK60325
2,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
2-Butanone	ND (25.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
2-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
2-Hexanone	ND (10.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
4-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
4-Isopropyltoluene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Acetone	ND (25.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Benzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Bromobenzene	ND (2.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8
Date Sampled: 10/31/16 17:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Bromodichloromethane	ND (0.6)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Bromoform	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Bromomethane	ND (2.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Carbon Disulfide	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Carbon Tetrachloride	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Chlorobenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Chloroethane	ND (2.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Chloroform	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Chloromethane	ND (2.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Dibromochloromethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Dibromomethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Diethyl Ether	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Di-isopropyl ether	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Ethylbenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Hexachlorobutadiene	ND (0.5)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Hexachloroethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Isopropylbenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Methylene Chloride	ND (4.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Naphthalene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
n-Butylbenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
n-Propylbenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
sec-Butylbenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Styrene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
tert-Butylbenzene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Tertiary-butyl Alcohol	ND (25.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Tetrachloroethene	11.8 (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-8
Date Sampled: 10/31/16 17:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (5.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Toluene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Trichloroethene	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Trichlorofluoromethane	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Vinyl Chloride	ND (1.0)		8260B		1	11/03/16 12:20	CZK0060	CK60325
Xylenes (Total)	ND (2.0)		8260B		1	11/03/16 12:20		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-7X
Date Sampled: 11/01/16 10:30
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,1-Dichloroethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,1-Dichloroethene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,1-Dichloropropene	ND (2.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2-Dibromoethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2-Dichloroethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,3 Dichloropropene (Total)	ND (0.4)		8260B		1	11/03/16 12:47		[CALC]
1,3,5-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
1,4-Dioxane - Screen	ND (500)		8260B		1	11/03/16 12:47	CZK0060	CK60325
2,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
2-Butanone	ND (25.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
2-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
2-Hexanone	ND (10.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
4-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
4-Isopropyltoluene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Acetone	ND (25.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Benzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Bromobenzene	ND (2.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-7X
Date Sampled: 11/01/16 10:30
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Bromodichloromethane	ND (0.6)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Bromoform	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Bromomethane	ND (2.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Carbon Disulfide	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Carbon Tetrachloride	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Chlorobenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Chloroethane	ND (2.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Chloroform	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Chloromethane	ND (2.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
cis-1,2-Dichloroethene	48.6 (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Dibromochloromethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Dibromomethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Diethyl Ether	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Di-isopropyl ether	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Ethylbenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Hexachlorobutadiene	ND (0.5)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Hexachloroethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Isopropylbenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Methylene Chloride	ND (4.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Naphthalene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
n-Butylbenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
n-Propylbenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
sec-Butylbenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Styrene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
tert-Butylbenzene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Tertiary-butyl Alcohol	ND (25.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Tetrachloroethene	157 (10.0)		8260B		10	11/07/16 14:32	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-7X
Date Sampled: 11/01/16 10:30
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (5.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Toluene	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
trans-1,2-Dichloroethene	1.3 (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Trichloroethene	8.6 (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Trichlorofluoromethane	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Vinyl Chloride	ND (1.0)		8260B		1	11/03/16 12:47	CZK0060	CK60325
Xylenes (Total)	ND (2.0)		8260B		1	11/03/16 12:47		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	93 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	96 %		70-130
<i>Surrogate: Toluene-d8</i>	102 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-3
Date Sampled: 11/01/16 12:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,1-Dichloroethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,1-Dichloroethene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,1-Dichloropropene	ND (2.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2-Dibromoethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2-Dichloroethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,3 Dichloropropene (Total)	ND (0.4)		8260B		1	11/03/16 13:14		[CALC]
1,3,5-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
1,4-Dioxane - Screen	ND (500)		8260B		1	11/03/16 13:14	CZK0060	CK60325
2,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
2-Butanone	ND (25.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
2-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
2-Hexanone	ND (10.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
4-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
4-Isopropyltoluene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Acetone	ND (25.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Benzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Bromobenzene	ND (2.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-3
Date Sampled: 11/01/16 12:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Bromodichloromethane	ND (0.6)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Bromoform	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Bromomethane	ND (2.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Carbon Disulfide	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Carbon Tetrachloride	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Chlorobenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Chloroethane	ND (2.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Chloroform	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Chloromethane	ND (2.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Dibromochloromethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Dibromomethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Diethyl Ether	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Di-isopropyl ether	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Ethylbenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Hexachlorobutadiene	ND (0.5)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Hexachloroethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Isopropylbenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Methylene Chloride	ND (4.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Naphthalene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
n-Butylbenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
n-Propylbenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
sec-Butylbenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Styrene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
tert-Butylbenzene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Tertiary-butyl Alcohol	ND (25.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Tetrachloroethene	3.0 (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-3
Date Sampled: 11/01/16 12:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (5.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Toluene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Trichloroethene	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Trichlorofluoromethane	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Vinyl Chloride	ND (1.0)		8260B		1	11/03/16 13:14	CZK0060	CK60325
Xylenes (Total)	ND (2.0)		8260B		1	11/03/16 13:14		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>90 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-1
Date Sampled: 11/01/16 13:25
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,1-Dichloroethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,1-Dichloroethene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,1-Dichloropropene	ND (2.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2-Dibromoethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2-Dichloroethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,3 Dichloropropene (Total)	ND (0.4)		8260B		1	11/03/16 13:40		[CALC]
1,3,5-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
1,4-Dioxane - Screen	ND (500)		8260B		1	11/03/16 13:40	CZK0060	CK60325
2,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
2-Butanone	ND (25.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
2-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
2-Hexanone	ND (10.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
4-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
4-Isopropyltoluene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Acetone	ND (25.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Benzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Bromobenzene	ND (2.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-1
Date Sampled: 11/01/16 13:25
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Bromodichloromethane	ND (0.6)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Bromoform	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Bromomethane	ND (2.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Carbon Disulfide	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Carbon Tetrachloride	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Chlorobenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Chloroethane	ND (2.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Chloroform	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Chloromethane	ND (2.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Dibromochloromethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Dibromomethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Diethyl Ether	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Di-isopropyl ether	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Ethylbenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Hexachlorobutadiene	ND (0.5)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Hexachloroethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Isopropylbenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Methylene Chloride	ND (4.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Naphthalene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
n-Butylbenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
n-Propylbenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
sec-Butylbenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Styrene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
tert-Butylbenzene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Tertiary-butyl Alcohol	ND (25.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Tetrachloroethene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-1
Date Sampled: 11/01/16 13:25
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (5.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Toluene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Trichloroethene	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Trichlorofluoromethane	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Vinyl Chloride	ND (1.0)		8260B		1	11/03/16 13:40	CZK0060	CK60325
Xylenes (Total)	ND (2.0)		8260B		1	11/03/16 13:40		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	92 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	107 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	97 %		70-130
<i>Surrogate: Toluene-d8</i>	102 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-5
Date Sampled: 11/01/16 14:15
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,1,1-Trichloroethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,1,2-Trichloroethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,1-Dichloroethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,1-Dichloroethene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,1-Dichloropropene	ND (2.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2,3-Trichloropropane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2-Dibromoethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2-Dichloroethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,3 Dichloropropene (Total)	ND (0.4)		8260B		1	11/03/16 14:07		[CALC]
1,3,5-Trichlorobenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,3-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,4-Dichlorobenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
1,4-Dioxane - Screen	ND (500)		8260B		1	11/03/16 14:07	CZK0060	CK60325
2,2-Dichloropropane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
2-Butanone	ND (25.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
2-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
2-Hexanone	ND (10.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
4-Chlorotoluene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
4-Isopropyltoluene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Acetone	ND (25.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Benzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Bromobenzene	ND (2.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-5
Date Sampled: 11/01/16 14:15
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Bromodichloromethane	ND (0.6)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Bromoform	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Bromomethane	ND (2.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Carbon Disulfide	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Carbon Tetrachloride	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Chlorobenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Chloroethane	ND (2.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Chloroform	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Chloromethane	ND (2.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Dibromochloromethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Dibromomethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Dichlorodifluoromethane	ND (2.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Diethyl Ether	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Di-isopropyl ether	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Ethylbenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Hexachlorobutadiene	ND (0.5)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Hexachloroethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Isopropylbenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Methylene Chloride	ND (4.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Naphthalene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
n-Butylbenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
n-Propylbenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
sec-Butylbenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Styrene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
tert-Butylbenzene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Tertiary-butyl Alcohol	ND (25.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Tetrachloroethene	276 (10.0)		8260B		10	11/07/16 14:57	CZK0060	CK60325



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners
Client Sample ID: MW-5
Date Sampled: 11/01/16 14:15
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1611042
ESS Laboratory Sample ID: 1611042-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (5.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Toluene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Trichloroethene	2.1 (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Trichlorofluoromethane	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Vinyl Chloride	ND (1.0)		8260B		1	11/03/16 14:07	CZK0060	CK60325
Xylenes (Total)	ND (2.0)		8260B		1	11/03/16 14:07		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>95 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CK60325 - 5030B

Blank

1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloropropene	ND	2.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
1,2,4-Trichlorobenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
1,2-Dibromo-3-Chloropropane	ND	5.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
1,3 Dichloropropene (Total)	ND	0.4	ug/L
1,3,5-Trichlorobenzene	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
1,4-Dioxane - Screen	ND	500	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
2-Butanone	ND	25.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
2-Hexanone	ND	10.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
4-Isopropyltoluene	ND	1.0	ug/L
4-Methyl-2-Pentanone	ND	10.0	ug/L
Acetone	ND	25.0	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	2.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	0.6	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon Disulfide	ND	1.0	ug/L
Carbon Tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CK60325 - 5030B

Dibromomethane	ND	1.0	ug/L							
Dichlorodifluoromethane	ND	2.0	ug/L							
Diethyl Ether	ND	1.0	ug/L							
Di-isopropyl ether	ND	1.0	ug/L							
Ethyl tertiary-butyl ether	ND	1.0	ug/L							
Ethylbenzene	ND	1.0	ug/L							
Hexachlorobutadiene	ND	0.5	ug/L							
Hexachloroethane	ND	1.0	ug/L							
Isopropylbenzene	ND	1.0	ug/L							
Methyl tert-Butyl Ether	ND	1.0	ug/L							
Methylene Chloride	ND	4.0	ug/L							
Naphthalene	ND	1.0	ug/L							
n-Butylbenzene	ND	1.0	ug/L							
n-Propylbenzene	ND	1.0	ug/L							
sec-Butylbenzene	ND	1.0	ug/L							
Styrene	ND	1.0	ug/L							
tert-Butylbenzene	ND	1.0	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tertiary-butyl Alcohol	ND	25.0	ug/L							
Tetrachloroethene	ND	1.0	ug/L							
Tetrahydrofuran	ND	5.0	ug/L							
Toluene	ND	1.0	ug/L							
trans-1,2-Dichloroethene	ND	1.0	ug/L							
Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylenes (Total)	ND	2.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	22.7		ug/L	25.00		91	70-130			
Surrogate: 4-Bromofluorobenzene	25.6		ug/L	25.00		102	70-130			
Surrogate: Dibromofluoromethane	24.7		ug/L	25.00		99	70-130			
Surrogate: Toluene-d8	25.1		ug/L	25.00		100	70-130			

LCS

1,1,1,2-Tetrachloroethane	9.2		ug/L	10.00		92	70-130			
1,1,1-Trichloroethane	9.8		ug/L	10.00		98	70-130			
1,1,2,2-Tetrachloroethane	9.9		ug/L	10.00		99	70-130			
1,1,2-Trichloroethane	9.6		ug/L	10.00		96	70-130			
1,1-Dichloroethane	9.8		ug/L	10.00		98	70-130			
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130			
1,1-Dichloropropene	10.3		ug/L	10.00		103	70-130			
1,2,3-Trichlorobenzene	10.7		ug/L	10.00		107	70-130			
1,2,3-Trichloropropane	9.9		ug/L	10.00		99	70-130			
1,2,4-Trichlorobenzene	11.0		ug/L	10.00		110	70-130			
1,2,4-Trimethylbenzene	10.2		ug/L	10.00		102	70-130			
1,2-Dibromo-3-Chloropropane	9.6		ug/L	10.00		96	70-130			
1,2-Dibromoethane	10.1		ug/L	10.00		101	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CK60325 - 5030B

1,2-Dichlorobenzene	10.0		ug/L	10.00		100	70-130			
1,2-Dichloroethane	9.9		ug/L	10.00		99	70-130			
1,2-Dichloropropane	9.4		ug/L	10.00		94	70-130			
1,3 Dichloropropene (Total)	18.0		ug/L							
1,3,5-Trichlorobenzene	10.8		ug/L	10.00		108	70-130			
1,3,5-Trimethylbenzene	10.6		ug/L	10.00		106	70-130			
1,3-Dichlorobenzene	9.7		ug/L	10.00		97	70-130			
1,4-Dichlorobenzene	9.7		ug/L	10.00		97	70-130			
1,4-Dioxane - Screen	301		ug/L	200.0		150	0-332			
2,2-Dichloropropane	10.6		ug/L	10.00		106	70-130			
2-Butanone	47.1		ug/L	50.00		94	70-130			
2-Chlorotoluene	9.8		ug/L	10.00		98	70-130			
2-Hexanone	47.9		ug/L	50.00		96	70-130			
4-Chlorotoluene	10.0		ug/L	10.00		100	70-130			
4-Isopropyltoluene	10.4		ug/L	10.00		104	70-130			
4-Methyl-2-Pentanone	46.6		ug/L	50.00		93	70-130			
Acetone	47.0		ug/L	50.00		94	70-130			
Benzene	10.1		ug/L	10.00		101	70-130			
Bromobenzene	10.5		ug/L	10.00		105	70-130			
Bromochloromethane	10.0		ug/L	10.00		100	70-130			
Bromodichloromethane	10.4		ug/L	10.00		104	70-130			
Bromoform	8.6		ug/L	10.00		86	70-130			
Bromomethane	10.6		ug/L	10.00		106	70-130			
Carbon Disulfide	10.1		ug/L	10.00		101	70-130			
Carbon Tetrachloride	10.0		ug/L	10.00		100	70-130			
Chlorobenzene	10.0		ug/L	10.00		100	70-130			
Chloroethane	8.7		ug/L	10.00		87	70-130			
Chloroform	9.9		ug/L	10.00		99	70-130			
Chloromethane	9.1		ug/L	10.00		91	70-130			
cis-1,2-Dichloroethene	9.5		ug/L	10.00		95	70-130			
Dibromochloromethane	8.8		ug/L	10.00		88	70-130			
Dibromomethane	9.8		ug/L	10.00		98	70-130			
Dichlorodifluoromethane	9.3		ug/L	10.00		93	70-130			
Diethyl Ether	10.1		ug/L	10.00		101	70-130			
Di-isopropyl ether	10.1		ug/L	10.00		101	70-130			
Ethyl tertiary-butyl ether	10.0		ug/L	10.00		100	70-130			
Ethylbenzene	10.4		ug/L	10.00		104	70-130			
Hexachlorobutadiene	10.7		ug/L	10.00		107	70-130			
Hexachloroethane	9.2		ug/L	10.00		92	70-130			
Isopropylbenzene	8.6		ug/L	10.00		86	70-130			
Methyl tert-Butyl Ether	10.0		ug/L	10.00		100	70-130			
Methylene Chloride	9.9		ug/L	10.00		99	70-130			
Naphthalene	10.7		ug/L	10.00		107	70-130			
n-Butylbenzene	10.6		ug/L	10.00		106	70-130			
n-Propylbenzene	10.0		ug/L	10.00		100	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CK60325 - 5030B

sec-Butylbenzene	10.1		ug/L	10.00		101	70-130			
Styrene	9.8		ug/L	10.00		98	70-130			
tert-Butylbenzene	10.2		ug/L	10.00		102	70-130			
Tertiary-amyl methyl ether	10.0		ug/L	10.00		100	70-130			
Tertiary-butyl Alcohol	53.9		ug/L	50.00		108	70-130			
Tetrachloroethene	10.2		ug/L	10.00		102	70-130			
Tetrahydrofuran	8.1		ug/L	10.00		81	70-130			
Toluene	9.7		ug/L	10.00		97	70-130			
trans-1,2-Dichloroethene	9.8		ug/L	10.00		98	70-130			
Trichloroethene	9.6		ug/L	10.00		96	70-130			
Trichlorofluoromethane	8.5		ug/L	10.00		85	70-130			
Vinyl Chloride	9.8		ug/L	10.00		98	70-130			
Xylenes (Total)	30.3		ug/L							
Surrogate: 1,2-Dichloroethane-d4	25.0		ug/L	25.00		100	70-130			
Surrogate: 4-Bromofluorobenzene	26.1		ug/L	25.00		104	70-130			
Surrogate: Dibromofluoromethane	25.5		ug/L	25.00		102	70-130			
Surrogate: Toluene-d8	27.0		ug/L	25.00		108	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	8.8		ug/L	10.00		88	70-130	5	25	
1,1,1-Trichloroethane	9.6		ug/L	10.00		96	70-130	3	25	
1,1,2,2-Tetrachloroethane	9.4		ug/L	10.00		94	70-130	5	25	
1,1,2-Trichloroethane	9.9		ug/L	10.00		99	70-130	3	25	
1,1-Dichloroethane	9.3		ug/L	10.00		93	70-130	5	25	
1,1-Dichloroethene	9.9		ug/L	10.00		99	70-130	2	25	
1,1-Dichloropropene	10.2		ug/L	10.00		102	70-130	1	25	
1,2,3-Trichlorobenzene	10.2		ug/L	10.00		102	70-130	4	25	
1,2,3-Trichloropropane	9.8		ug/L	10.00		98	70-130	0.8	25	
1,2,4-Trichlorobenzene	10.5		ug/L	10.00		105	70-130	5	25	
1,2,4-Trimethylbenzene	9.8		ug/L	10.00		98	70-130	4	25	
1,2-Dibromo-3-Chloropropane	9.4		ug/L	10.00		94	70-130	1	25	
1,2-Dibromoethane	10.2		ug/L	10.00		102	70-130	0.9	25	
1,2-Dichlorobenzene	9.9		ug/L	10.00		99	70-130	0.5	25	
1,2-Dichloroethane	9.5		ug/L	10.00		95	70-130	4	25	
1,2-Dichloropropane	9.0		ug/L	10.00		90	70-130	4	25	
1,3 Dichloropropene (Total)	17.5		ug/L							
1,3,5-Trichlorobenzene	10.7		ug/L	10.00		107	70-130	2	25	
1,3,5-Trimethylbenzene	10.3		ug/L	10.00		103	70-130	3	25	
1,3-Dichlorobenzene	9.8		ug/L	10.00		98	70-130	0.8	25	
1,4-Dichlorobenzene	9.5		ug/L	10.00		95	70-130	3	25	
1,4-Dioxane - Screen	226		ug/L	200.0		113	0-332	28	200	
2,2-Dichloropropane	10.4		ug/L	10.00		104	70-130	3	25	
2-Butanone	44.7		ug/L	50.00		89	70-130	5	25	
2-Chlorotoluene	9.8		ug/L	10.00		98	70-130	0.1	25	
2-Hexanone	45.1		ug/L	50.00		90	70-130	6	25	
4-Chlorotoluene	10.0		ug/L	10.00		100	70-130	0.1	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CK60325 - 5030B

4-Isopropyltoluene	10.2		ug/L	10.00		102	70-130	2	25	
4-Methyl-2-Pentanone	44.4		ug/L	50.00		89	70-130	5	25	
Acetone	46.1		ug/L	50.00		92	70-130	2	25	
Benzene	9.9		ug/L	10.00		99	70-130	2	25	
Bromobenzene	10.1		ug/L	10.00		101	70-130	4	25	
Bromochloromethane	9.7		ug/L	10.00		97	70-130	3	25	
Bromodichloromethane	9.7		ug/L	10.00		97	70-130	7	25	
Bromoform	8.5		ug/L	10.00		85	70-130	0.6	25	
Bromomethane	10.4		ug/L	10.00		104	70-130	2	25	
Carbon Disulfide	9.8		ug/L	10.00		98	70-130	4	25	
Carbon Tetrachloride	10.1		ug/L	10.00		101	70-130	0.7	25	
Chlorobenzene	9.9		ug/L	10.00		99	70-130	2	25	
Chloroethane	8.7		ug/L	10.00		87	70-130	0.1	25	
Chloroform	9.6		ug/L	10.00		96	70-130	2	25	
Chloromethane	9.4		ug/L	10.00		94	70-130	3	25	
cis-1,2-Dichloroethene	9.4		ug/L	10.00		94	70-130	1	25	
Dibromochloromethane	8.6		ug/L	10.00		86	70-130	3	25	
Dibromomethane	9.1		ug/L	10.00		91	70-130	7	25	
Dichlorodifluoromethane	8.6		ug/L	10.00		86	70-130	8	25	
Diethyl Ether	9.4		ug/L	10.00		94	70-130	7	25	
Di-isopropyl ether	9.9		ug/L	10.00		99	70-130	2	25	
Ethyl tertiary-butyl ether	9.8		ug/L	10.00		98	70-130	2	25	
Ethylbenzene	10.1		ug/L	10.00		101	70-130	2	25	
Hexachlorobutadiene	9.8		ug/L	10.00		98	70-130	9	25	
Hexachloroethane	8.7		ug/L	10.00		87	70-130	6	25	
Isopropylbenzene	8.3		ug/L	10.00		83	70-130	4	25	
Methyl tert-Butyl Ether	9.7		ug/L	10.00		97	70-130	3	25	
Methylene Chloride	9.8		ug/L	10.00		98	70-130	1	25	
Naphthalene	10.0		ug/L	10.00		100	70-130	7	25	
n-Butylbenzene	10.5		ug/L	10.00		105	70-130	1	25	
n-Propylbenzene	9.7		ug/L	10.00		97	70-130	2	25	
sec-Butylbenzene	9.8		ug/L	10.00		98	70-130	2	25	
Styrene	9.4		ug/L	10.00		94	70-130	5	25	
tert-Butylbenzene	9.9		ug/L	10.00		99	70-130	3	25	
Tertiary-amyl methyl ether	9.7		ug/L	10.00		97	70-130	4	25	
Tertiary-butyl Alcohol	48.1		ug/L	50.00		96	70-130	11	25	
Tetrachloroethene	9.6		ug/L	10.00		96	70-130	5	25	
Tetrahydrofuran	7.7		ug/L	10.00		77	70-130	5	25	
Toluene	9.8		ug/L	10.00		98	70-130	1	25	
trans-1,2-Dichloroethene	9.2		ug/L	10.00		92	70-130	6	25	
Trichloroethene	9.2		ug/L	10.00		92	70-130	3	25	
Trichlorofluoromethane	8.7		ug/L	10.00		87	70-130	2	25	
Vinyl Chloride	9.8		ug/L	10.00		98	70-130	0.2	25	
Xylenes (Total)	29.8		ug/L							
Surrogate: 1,2-Dichloroethane-d4	24.0		ug/L	25.00		96	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CK60325 - 50308

Surrogate: 4-Bromofluorobenzene	26.1		ug/L	25.00		105	70-130			
Surrogate: Dibromofluoromethane	25.1		ug/L	25.00		100	70-130			
Surrogate: Toluene-d8	26.2		ug/L	25.00		105	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Brenton Cleaners

ESS Laboratory Work Order: 1611042

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Bedford, NH - GZA/CMT

ESS Project ID: 1611042
 Date Received: 11/2/2016
 Project Due Date: 11/9/2016
 Days for Project: 5 Day

Shipped/Delivered Via: ESS Courier

1. Air bill manifest present? ☐ No
 Air No.: NA
2. Were custody seals present? ☐ Yes
3. Is radiation count <100 CPM? ☐ Yes
4. Is a Cooler Present? ☐ Yes
 Temp: 2.1 Iced with: Ice
5. Was COC signed and dated by client? ☐ Yes

6. Does COC match bottles? ☐ Yes
7. Is COC complete and correct? ☐ Yes
8. Were samples received intact? ☐ Yes
9. Were labs informed about short holds & rushes? Yes / No ☒ NA
10. Were any analyses received outside of hold time? Yes ☒ No

11. Any Subcontracting needed? Yes / ☒ No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? ☒ Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? ☒ Yes / No / NA

13. Are the samples properly preserved? ☒ Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / ☒ No
 a. Was there a need to contact the client? Yes / ☒ No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	79491	Yes	No	Yes	VOA Vial - HCl	HCl	
01	79492	Yes	No	Yes	VOA Vial - HCl	HCl	
01	79493	Yes	No	Yes	VOA Vial - HCl	HCl	
02	79488	Yes	No	Yes	VOA Vial - HCl	HCl	
02	79489	Yes	No	Yes	VOA Vial - HCl	HCl	
02	79490	Yes	No	Yes	VOA Vial - HCl	HCl	
03	79485	Yes	No	Yes	VOA Vial - HCl	HCl	
03	79486	Yes	No	Yes	VOA Vial - HCl	HCl	
03	79487	Yes	No	Yes	VOA Vial - HCl	HCl	
04	79482	Yes	No	Yes	VOA Vial - HCl	HCl	
04	79483	Yes	No	Yes	VOA Vial - HCl	HCl	
04	79484	Yes	No	Yes	VOA Vial - HCl	HCl	
05	79479	Yes	No	Yes	VOA Vial - HCl	HCl	
05	79480	Yes	No	Yes	VOA Vial - HCl	HCl	
05	79481	Yes	No	Yes	VOA Vial - HCl	HCl	

2nd Review

Are barcode labels on correct containers? ☒ Yes / No

Completed

By: [Signature]

Date & Time: 11/2/16 1831

Reviewed

By: [Signature]

Date & Time: 11/2/16 2008

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Bedford, NH - GZA/CMT

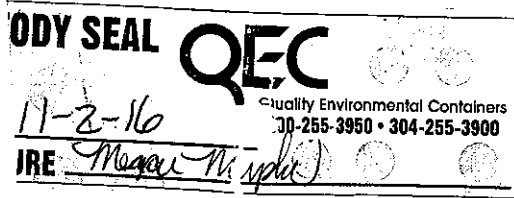
ESS Project ID: 1611042

Date Received: 11/2/2016

Delivered

By:

[Signature] 11/2/16 2008



ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211

Tel. (401) 461-7181 Fax (401) 461-4486

www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab #

1611042

Turn Time ☒ Standard Other _____

Regulatory State: MA RI CT NH NJ NY ME Other _____

Is this project for any of the following: (please circle)

MA-MCP Navy USACE CT DEP Other _____

Reporting Limits - _____

Electronic Deliverables Excel Access PDF

Co. Name Amy Doherty
Contact Person GZA

Project # 04.0190325.10 Project Name Brenton Cleaners
Address 5 Commerce Park North

City Bedford State NH Zip 03110

Tel. 603-232-8731 Fax. _____ email: _____

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	Analysis										
	10-31-16	1000	G	S	MW-8, S3	6	4	G/VOA	8oz/40mL	X										
		1145		S	MW-8, S3 (2)	1	1	1	1											
		1630		S	MW-7X	1	3*	VOA	40mL											
1		1735		GW	MW-8	2	3	VOA	40mL											
2	11-1-16	1030			MW-7X															
3		1200			MW-3															
4		1325			MW-1															
5		1415			MW-5															
	10-31-16	800	G	S	TB	6	3	VOA	40mL	X										

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present ☒ Yes ☐ No

Internal Use Only

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAc2, 9-_____

Seals Intact ☒ Yes ☐ No NA: ☒

☒ Pickup

Sampled by: mem

Cooler Temperature: ice Temp 21

[] Technician _____

Comments: * syringe filled for % solids

Relinquished by: (Signature, Date & Time) [Signature] 11-2-16 800

Received by: (Signature, Date & Time) [Signature] 11/2/16 1121

Relinquished by: (Signature, Date & Time) [Signature] 11/2/16 1727

Received by: (Signature, Date & Time) [Signature] 11/2/16 1814

Relinquished by: (Signature, Date & Time)

Received by: (Signature, Date & Time)

Relinquished by: (Signature, Date & Time)

Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy

2 (Yellow) Client Receipt



CERTIFICATE OF ANALYSIS

Amy Doherty
GZA GeoEnvironmental, Inc.
5 Commerce Park North
Bedford, NH 03110

RE: Breton Cleaners (04.0190325.01)
ESS Laboratory Work Order Number: 1610138

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 11:44 am, Oct 17, 2016

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610138

SAMPLE RECEIPT

The following samples were received on October 07, 2016 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1610138-01	100516 PCB-01	Solid	8082A
1610138-02	100516 PCB-01 DUP	Solid	8082A
1610138-03	100516 PCB-02	Solid	8082A
1610138-04	100516 PCB-03	Solid	8082A
1610138-05	100516 PCB-04	Solid	8082A



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610138

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1610138-04 Surrogate recovery(ies) above upper control limit (S+).

Decachlorobiphenyl [2C] (879% @ 30-150%)

1610138-05 Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).

Tetrachloro-m-xylene (23% @ 30-150%), Tetrachloro-m-xylene [2C] (28% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610138

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: 100516 PCB-01
Date Sampled: 10/05/16 11:50
Percent Solids: N/A
Initial Volume: 10
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1610138
ESS Laboratory Sample ID: 1610138-01
Sample Matrix: Solid
Units: mg/kg wet
Analyst: SMR
Prepared: 10/11/16 17:12

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.100)		8082A		1	10/12/16 12:15		CJ61107
Aroclor 1221	ND (0.100)		8082A		1	10/12/16 12:15		CJ61107
Aroclor 1232	ND (0.100)		8082A		1	10/12/16 12:15		CJ61107
Aroclor 1242	ND (0.100)		8082A		1	10/12/16 12:15		CJ61107
Aroclor 1248	ND (0.100)		8082A		1	10/12/16 12:15		CJ61107
Aroclor 1254	0.101 (0.100)		8082A		1	10/12/16 12:15		CJ61107
Aroclor 1260	ND (0.100)		8082A		1	10/12/16 12:15		CJ61107
Aroclor 1262	ND (0.100)		8082A		1	10/12/16 12:15		CJ61107
Aroclor 1268	ND (0.100)		8082A		1	10/12/16 12:15		CJ61107

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	81 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	95 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	77 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: 100516 PCB-01 DUP
Date Sampled: 10/05/16 11:50
Percent Solids: N/A
Initial Volume: 10.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1610138
ESS Laboratory Sample ID: 1610138-02
Sample Matrix: Solid
Units: mg/kg wet
Analyst: SMR
Prepared: 10/11/16 17:12

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107
Aroclor 1221	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107
Aroclor 1232	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107
Aroclor 1242	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107
Aroclor 1248	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107
Aroclor 1254	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107
Aroclor 1260	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107
Aroclor 1262	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107
Aroclor 1268	ND (0.0990)		8082A		1	10/12/16 12:34		CJ61107

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: Decachlorobiphenyl	79 %		30-150
Surrogate: Decachlorobiphenyl [2C]	90 %		30-150
Surrogate: Tetrachloro-m-xylene	67 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: 100516 PCB-02
Date Sampled: 10/05/16 11:55
Percent Solids: N/A
Initial Volume: 10.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1610138
ESS Laboratory Sample ID: 1610138-03
Sample Matrix: Solid
Units: mg/kg wet
Analyst: SMR
Prepared: 10/11/16 17:12

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.0990)		8082A		1	10/12/16 12:53		CJ61107
Aroclor 1221	ND (0.0990)		8082A		1	10/12/16 12:53		CJ61107
Aroclor 1232	ND (0.0990)		8082A		1	10/12/16 12:53		CJ61107
Aroclor 1242	ND (0.0990)		8082A		1	10/12/16 12:53		CJ61107
Aroclor 1248	ND (0.0990)		8082A		1	10/12/16 12:53		CJ61107
Aroclor 1254	0.226 (0.0990)		8082A		1	10/12/16 12:53		CJ61107
Aroclor 1260	0.135 (0.0990)		8082A		1	10/12/16 12:53		CJ61107
Aroclor 1262	ND (0.0990)		8082A		1	10/12/16 12:53		CJ61107
Aroclor 1268	ND (0.0990)		8082A		1	10/12/16 12:53		CJ61107

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: Decachlorobiphenyl	64 %		30-150
Surrogate: Decachlorobiphenyl [2C]	93 %		30-150
Surrogate: Tetrachloro-m-xylene	71 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	69 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: 100516 PCB-03
Date Sampled: 10/05/16 12:00
Percent Solids: N/A
Initial Volume: 10.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1610138
ESS Laboratory Sample ID: 1610138-04
Sample Matrix: Solid
Units: mg/kg wet
Analyst: SMR
Prepared: 10/11/16 17:12

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.0980)		8082A		1	10/12/16 13:12		CJ61107
Aroclor 1221	ND (0.0980)		8082A		1	10/12/16 13:12		CJ61107
Aroclor 1232	ND (0.0980)		8082A		1	10/12/16 13:12		CJ61107
Aroclor 1242	ND (0.0980)		8082A		1	10/12/16 13:12		CJ61107
Aroclor 1248	ND (0.0980)		8082A		1	10/12/16 13:12		CJ61107
Aroclor 1254	0.144 (0.0980)		8082A		1	10/12/16 13:12		CJ61107
Aroclor 1260	ND (0.0980)		8082A		1	10/12/16 13:12		CJ61107
Aroclor 1262	ND (0.0980)		8082A		1	10/12/16 13:12		CJ61107
Aroclor 1268	ND (0.0980)		8082A		1	10/12/16 13:12		CJ61107

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	78 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	879 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	81 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: 100516 PCB-04
Date Sampled: 10/05/16 12:05
Percent Solids: N/A
Initial Volume: 2.03
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1610138
ESS Laboratory Sample ID: 1610138-05
Sample Matrix: Solid
Units: mg/kg wet
Analyst: SMR
Prepared: 10/11/16 17:12

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426
Aroclor 1221	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426
Aroclor 1232	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426
Aroclor 1242	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426
Aroclor 1248	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426
Aroclor 1254	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426
Aroclor 1260	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426
Aroclor 1262	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426
Aroclor 1268	ND (0.493)		8082A		1	10/13/16 13:50		CJ61426

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	50 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	56 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	23 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	28 %	SM	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610138

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CJ61107 - 3540C

Blank

Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0209		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS

Aroclor 1016	0.486	0.0500	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.483	0.0500	mg/kg wet	0.5000		97	40-140			

Surrogate: Decachlorobiphenyl	0.0239		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0263		mg/kg wet	0.02500		105	30-150			
Surrogate: Tetrachloro-m-xylene	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0219		mg/kg wet	0.02500		88	30-150			

LCS Dup

Aroclor 1016	0.472	0.0500	mg/kg wet	0.5000		94	40-140	3	30	
Aroclor 1260	0.465	0.0500	mg/kg wet	0.5000		93	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0245		mg/kg wet	0.02500		98	30-150			
Surrogate: Tetrachloro-m-xylene	0.0218		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0204		mg/kg wet	0.02500		82	30-150			

Batch CJ61426 - 3540C

Blank

Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0191		mg/kg wet	0.02500		76	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0212		mg/kg wet	0.02500		85	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610138

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CJ61426 - 3540C

Surrogate: Tetrachloro-m-xylene	0.0201		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0218		mg/kg wet	0.02500		87	30-150			

LCS

Aroclor 1016	0.516	0.0500	mg/kg wet	0.5000		103	40-140			
Aroclor 1260	0.460	0.0500	mg/kg wet	0.5000		92	40-140			

Surrogate: Decachlorobiphenyl	0.0239		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0251		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0218		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0229		mg/kg wet	0.02500		91	30-150			

LCS Dup

Aroclor 1016	0.491	0.0500	mg/kg wet	0.5000		98	40-140	5	30	
Aroclor 1260	0.454	0.0500	mg/kg wet	0.5000		91	40-140	1	30	

Surrogate: Decachlorobiphenyl	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0236		mg/kg wet	0.02500		94	30-150			
Surrogate: Tetrachloro-m-xylene	0.0200		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0209		mg/kg wet	0.02500		84	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610138

Notes and Definitions

U	Analyte included in the analysis, but not detected
SM	Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
S+	Surrogate recovery(ies) above upper control limit (S+).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610138

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Bedford, NH - GZA/CMT

ESS Project ID: 1610138

Shipped/Delivered Via: ESS Courier

Date Received: 10/7/2016

Project Due Date: 10/17/2016

Days for Project: 5 Day

1. Air bill manifest present? ☐ No
Air No.: NA

6. Does COC match bottles? ☐ Yes

2. Were custody seals present? ☐ No

7. Is COC complete and correct? ☐ Yes

3. Is radiation count <100 CPM? ☐ Yes

8. Were samples received intact? ☐ Yes

4. Is a Cooler Present? ☐ Yes
Temp: 2.3 Iced with: Ice

9. Were labs informed about short holds & rushes? Yes / No / NA

5. Was COC signed and dated by client? ☐ Yes

10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____
b. Low Level VOA vials frozen: Date: _____

Time: _____ By: _____
Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____

Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	72419	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	72418	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	72417	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	72416	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	72415	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Are barcode labels on correct containers? Yes / No

Completed By: [Signature] Date & Time: 10/7/16 1755
Reviewed By: [Signature] Date & Time: 10/7/16 1810
Delivered By: [Signature] Date & Time: 10/7/16 1810



CERTIFICATE OF ANALYSIS

Amy Doherty
GZA GeoEnvironmental, Inc.
5 Commerce Park North
Bedford, NH 03110

RE: Breton Cleaners (04.0190325.10)
ESS Laboratory Work Order Number: 1610139

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 11:48 am, Oct 17, 2016

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610139

SAMPLE RECEIPT

The following samples were received on October 07, 2016 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1610139-01	TCLP-01	Solid	1311, 1311/6010C
1610139-02	TCLP-02	Solid	1311, 1311/6010C
1610139-03	TCLP-02-DUP	Solid	1311, 1311/6010C
1610139-04	TCLP-03	Solid	1311, 1311/6010C



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610139

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

[Definitions of Quality Control Parameters](#)
[Semivolatile Organics Internal Standard Information](#)
[Semivolatile Organics Surrogate Information](#)
[Volatile Organics Internal Standard Information](#)
[Volatile Organics Surrogate Information](#)
[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610139

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: TCLP-01
Date Sampled: 10/05/16 14:30
Percent Solids: N/A

ESS Laboratory Work Order: 1610139
ESS Laboratory Sample ID: 1610139-01
Sample Matrix: Solid
Units: mg/L

Extraction Method: 3005A TCLP

1311 TCLP Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>TCLP Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	0.063 (0.050)		1311/6010C		1	KJK	10/13/16 2:19	50	50	CJ61209



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: TCLP-01
Date Sampled: 10/05/16 14:30
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1311

ESS Laboratory Work Order: 1610139
ESS Laboratory Sample ID: 1610139-01
Sample Matrix: Solid
Units: °C
Analyst: LAB
Prepared: 10/11/16 15:30

TCLP Extraction by 1311

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Batch</u>
Temperature (Min C)	19.2 (N/A)		1311		1	LAB	10/12/16 7:35	CJ61122
Temperature (Max C)	22.3 (N/A)		1311		1	LAB	10/12/16 7:35	CJ61122
Temperature (Range)	Temperature is not within 23 +/-2 °C. (N/A)							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: TCLP-02
Date Sampled: 10/05/16 14:50
Percent Solids: N/A

ESS Laboratory Work Order: 1610139
ESS Laboratory Sample ID: 1610139-02
Sample Matrix: Solid
Units: mg/L

Extraction Method: 3005A TCLP

1311 TCLP Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>TCLP Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	ND (0.050)		1311/6010C		1	KJK	10/13/16 2:25	50	50	CJ61209



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: TCLP-02
Date Sampled: 10/05/16 14:50
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1311

ESS Laboratory Work Order: 1610139
ESS Laboratory Sample ID: 1610139-02
Sample Matrix: Solid
Units: °C
Analyst: LAB
Prepared: 10/11/16 15:30

TCLP Extraction by 1311

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Batch</u>
Temperature (Min C)	19.2 (N/A)		1311		1	LAB	10/12/16 7:35	CJ61122
Temperature (Max C)	22.3 (N/A)		1311		1	LAB	10/12/16 7:35	CJ61122
Temperature (Range)	Temperature is not within 23 +/-2 °C. (N/A)							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: TCLP-02-DUP
Date Sampled: 10/05/16 14:50
Percent Solids: N/A

ESS Laboratory Work Order: 1610139
ESS Laboratory Sample ID: 1610139-03
Sample Matrix: Solid
Units: mg/L

Extraction Method: 3005A TCLP

1311 TCLP Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>TCLP Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	0.055 (0.050)		1311/6010C		1	KJK	10/13/16 2:52	50	50	CJ61209



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: TCLP-02-DUP
Date Sampled: 10/05/16 14:50
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1311

ESS Laboratory Work Order: 1610139
ESS Laboratory Sample ID: 1610139-03
Sample Matrix: Solid
Units: °C
Analyst: LAB
Prepared: 10/11/16 15:30

TCLP Extraction by 1311

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Batch</u>
Temperature (Min C)	19.2 (N/A)		1311		1	LAB	10/12/16 7:35	CJ61122
Temperature (Max C)	22.3 (N/A)		1311		1	LAB	10/12/16 7:35	CJ61122
Temperature (Range)	Temperature is not within 23 +/-2 °C. (N/A)							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: TCLP-03
Date Sampled: 10/05/16 15:35
Percent Solids: N/A

ESS Laboratory Work Order: 1610139
ESS Laboratory Sample ID: 1610139-04
Sample Matrix: Solid
Units: mg/L

Extraction Method: 3005A TCLP

1311 TCLP Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>TCLP Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	ND (0.050)		1311/6010C		1	KJK	10/13/16 3:24	50	50	CJ61209



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners
Client Sample ID: TCLP-03
Date Sampled: 10/05/16 15:35
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1311

ESS Laboratory Work Order: 1610139
ESS Laboratory Sample ID: 1610139-04
Sample Matrix: Solid
Units: °C
Analyst: LAB
Prepared: 10/11/16 15:30

TCLP Extraction by 1311

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Batch</u>
Temperature (Min C)	19.2 (N/A)		1311		1	LAB	10/12/16 7:35	CJ61122
Temperature (Max C)	22.3 (N/A)		1311		1	LAB	10/12/16 7:35	CJ61122
Temperature (Range)	Temperature is not within 23 +/-2 °C. (N/A)							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610139

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1311 TCLP Metals										
Batch CJ61209 - 3005A_TCLP										
Blank										
Lead	ND	0.050	mg/L							
Blank										
Lead	ND	0.050	mg/L							
LCS										
Lead	0.521	0.050	mg/L	0.5000		104	80-120			
LCS Dup										
Lead	0.536	0.050	mg/L	0.5000		107	80-120	3	20	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610139

Notes and Definitions

Z18	Temperature is not within 23 +/-2 °C.
U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Breton Cleaners

ESS Laboratory Work Order: 1610139

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095



GZA GeoEnvironmental, Inc.

Application for Federal Assistance SF-424

* 1. Type of Submission:

- ☐ Preapplication
☒ Application
☐ Changed/Corrected Application

* 2. Type of Application:

- ☒ New
☐ Continuation
☐ Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received:

11/15/2017

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name:

City of Somersworth

* b. Employer/Taxpayer Identification Number (EIN/TIN):

02-6000841

* c. Organizational DUNS:

0699119800000

d. Address:

* Street1:

One Government Way

Street2:

* City:

Somersworth

County/Parish:

* State:

NH: New Hampshire

Province:

* Country:

USA: UNITED STATES

* Zip / Postal Code:

03878-3248

e. Organizational Unit:

Department Name:

Department of Development Ser

Division Name:

Planning

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:

Ms.

* First Name:

Shanna

Middle Name:

* Last Name:

Saunders

Suffix:

Title: Planning Director

Organizational Affiliation:

City of Somersworth

* Telephone Number:

603-692-9519

Fax Number:

* Email:

ssaunders@somersworth.com

Application for Federal Assistance SF-424

* 9. Type of Applicant 1: Select Applicant Type:

C: City or Township Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

* 10. Name of Federal Agency:

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.818

CFDA Title:

Brownfields Assessment and Cleanup Cooperative Agreements

* 12. Funding Opportunity Number:

EPA-OLEM-OBLR-17-09

* Title:

FY18 GUIDELINES FOR BROWNFIELDS CLEANUP GRANTS

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

* 15. Descriptive Title of Applicant's Project:

Breton's Cleaner's Brownfields clean up

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424**16. Congressional Districts Of:*** a. Applicant * b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

17. Proposed Project:* a. Start Date: * b. End Date: **18. Estimated Funding (\$):*** a. Federal * b. Applicant * c. State * d. Local * e. Other * f. Program Income * g. TOTAL *** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**☐ a. This application was made available to the State under the Executive Order 12372 Process for review on ☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.☒ c. Program is not covered by E.O. 12372.*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment

Delete Attachment

View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:Prefix: * First Name: Middle Name: * Last Name: Suffix: * Title: * Telephone Number: Fax Number: * Email: * Signature of Authorized Representative: * Date Signed: